E3 RECOST

Q1 2026

January 22, 2026

Energy+Environmental Economics

With Support From Halcyon

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Executive Summary

RECOST Q1 2026

Energy+Environmental Economics

Under Pressure: Gas Continues to Rise, But for How Long?

Building new natural gas generation plants became more competitive, more complex, and more fraught with risk over the course of 2025. Tracking and analyzing secular, policy, and plant-specific factors across as large of an empirical foundation as possible is now essential to understand new plant costs. E3 is partnering with Halcyon, the AI platform that makes energy information discoverable and actionable, to create our gas plant cost forecasts. In the near-term, heterogeneity dominates – there is no "typical" gas plant cost profile when including turbine costs, site-specific characteristics, and labor market considerations. In the long-run, E3 expects moderation of gas plant costs, but critical planning and price outcomes will hinge on when and whether this occurs.

To Whom It May Concern: FEOC Costs Become a Reality

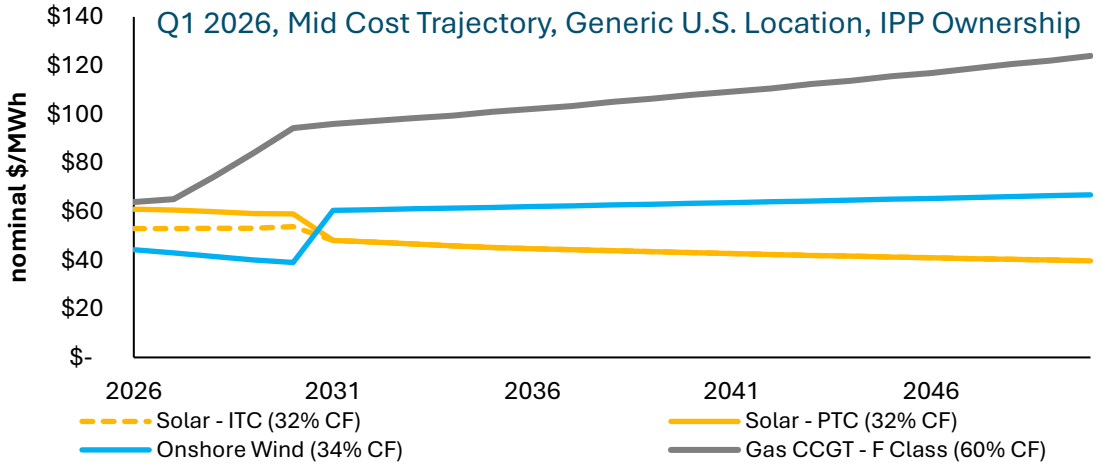
Final guidance on Foreign Entity of Concern (FEOC) restrictions for projects claiming federal tax incentives has not been issued as of this report's release. However, the fundamental question posed by FEOC is clear: what is the cost of complying with FEOC restrictions *when this also increases the likelihood of receiving the Domestic Content bonus tax credit*, relative to a resource that does not receive credits but instead sources all possible equipment from cheaper foreign sources? In general, we find that complying with FEOC and claiming the Domestic Content bonus credit could be a net benefit to BESS and onshore wind resources, but is more likely to be a net cost for solar resources.

New to RECOST: Public Utility Financing Model

The default perspective in RECOST is the Independent Power Producer. Now, we expand the potential options beyond the typical offerings to include publicly owned utilities (POUs) by incorporating a revenue requirement model that reflects differences in treatment of depreciation, taxes, tax credits, and rates of return.

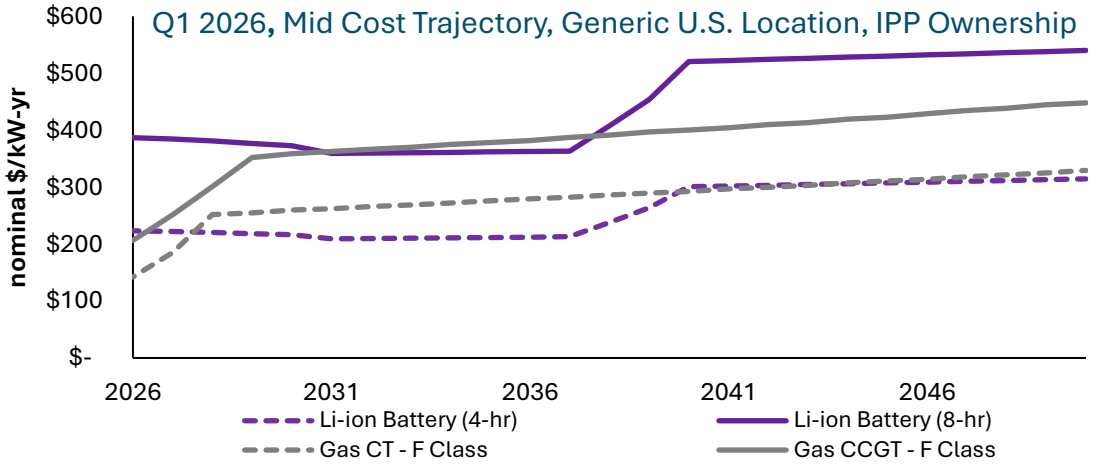
RECOST LCOE for Selected Resources

Q1 2026, Mid Cost Trajectory, Generic U.S. Location, IPP Ownership



RECOST LFC for Selected Resources

Q1 2026, Mid Cost Trajectory, Generic U.S. Location, IPP Ownership



Introduction

RECOST: Q1 2026 Update

Energy+Environmental Economics

Who is E3?

Technical & Strategic Consulting Specializing in the Energy Transition

130+ full-time consultants

30+ years of deep expertise

Engineering, Economics, Mathematics, and Public Policy Degrees


San Francisco


New York

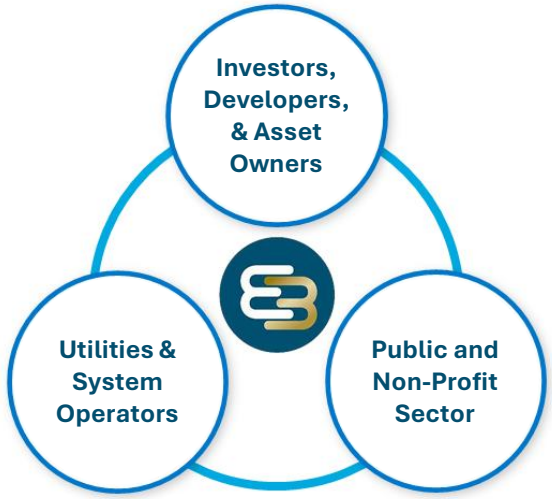

Boston


Calgary


Denver

E3 Clients

400+ projects per year across our diverse client base



Asset Classes Supported by E3

- Utilities
- Thermal Generation Resources
- Transmission and Grid Enhancing Technologies
- New Generation Technologies
- Software Solutions
- Data Centers and Other Large Loads
- Low Carbon Fuels and Pipelines
- Energy Storage
- On/Off-Shore Renewables
- Electric Vehicles, Distributed Generation and Flexible Loads

Who is E3?

Our Practice Areas

+ E3 is the largest power sector focused consulting firm in North America
+ E3 is a recognized thought leader on many topics such as power market design and system planning
+ E3 has three major practice areas covering energy systems from bulk grid to behind the meter

Climate Pathways & Electrification

- Long-term energy & climate scenarios
- Electrification and low-carbon fuels analysis
- Customer affordability
- Climate risk analysis focused on wildfires

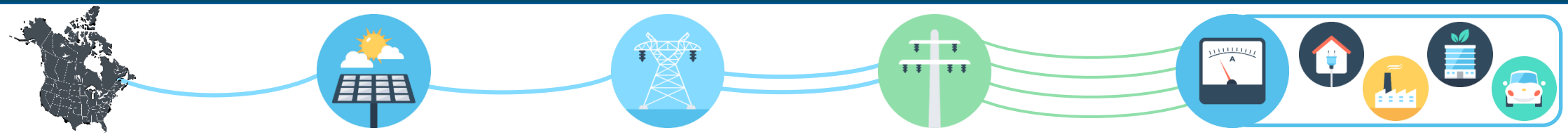
Asset Valuation & Markets

- Energy market price forecasting
- Strategic advisory
- Due diligence
- Market design
- Regulatory consulting
- Transmission planning

Integrated System Planning

- Electric system planning: reliability and resource analysis
- Utility planning and procurement decisions
- Bid evaluation and procurement support

Economy-Wide Energy Systems — Bulk Grid Power Systems — Grid Edge / Behind-The-Meter

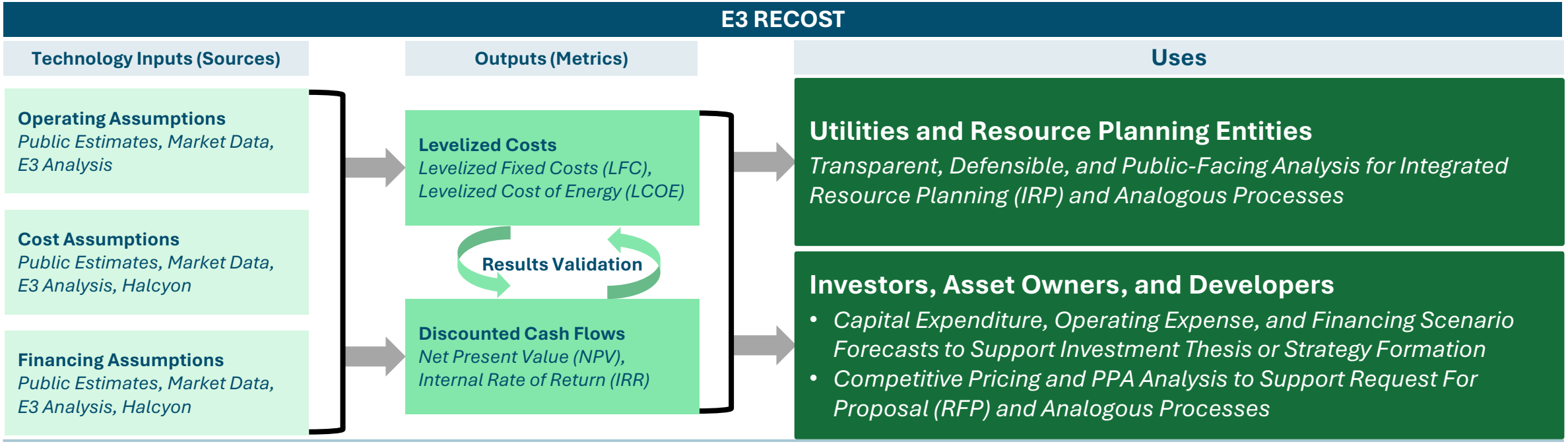


What is E3 RECOST?

Overview of Model and Use(s)

- **RECOST** is E3's in-house discounted cash flow model used to calculate levelized fixed costs and levelized cost of electricity for mature and emerging technology resources, inclusive of financing costs
- **RECOST** is optimized for two goals:
  1) Evaluate the fundamental economic costs of building new resources to inform energy system modeling, validate investment theses, and shape resource strategy for public and private sector stakeholders
  2) Estimate the expected cost to contract these resources under Power Purchase Agreements (PPAs), and support the calculation of Levelized Cost of Capacity (LCOC) using each resource's Effective Load Carrying Capability (ELCC)

RECOST is built to inform the ongoing debate around how to finance and build the resources necessary for the energy transition by leveraging E3's expertise on this topic in a transparent and rigorous model



Calculation of Levelized Costs

RECOST Model Overview

+ **Levelized Fixed Cost (LFC) ($/kW-yr):** the levelized ***capacity*** payment that a system would need every operating year over its useful life to cover fixed costs, including amortized capital costs (capex), fixed operations and maintenance (O&M) costs, property taxes, and investment tax credits (if applicable)
  - This output is used to calculate Levelized Cost of Capacity (LCOC) by adjusting for Effective Load Carrying Capability
+ **Levelized Cost of Electricity (LCOE) ($/MWh):** the levelized ***energy*** payments that a system would need for every operating hour over its useful life to cover all costs, including fixed cost components as well as fuel costs, variable O&M, and the federal production tax credit (if applicable)

$$\mathbf{LFC} = \frac{\mathrm{NPV}(\text{Fixed Costs}, \$)}{\mathrm{NPV}(\text{Capacity}, \mathrm{kW})}$$

Fixed Costs =
+ Capital Expenditures and Interconnection Costs
+ Investment Tax Credit
+ Fixed O&M
+ Property Taxes
+ Warranty
+ Repowering & Augmentation

$$\mathbf{LCOE} = \frac{\mathrm{NPV}(\text{Total Costs}, \$)}{\mathrm{NPV}(\text{Energy}, \mathrm{MWh})}$$

Total Costs =
+ LFC
+ Variable O&M
+ Fuel
+ Production Tax Credit

What is E3 RECOST?

Technologies Evaluated in RECOST

***RECOST** currently evaluates the following technologies, with the ability to modify any cost or operating parameter as appropriate:*

Natural Gas*	1) Natural gas combustion turbines (CT), Frame and Aero 2) Combined cycle gas turbines (CCGT), F and H Class 3) Reciprocating internal combustion engines (RICE)
Nuclear*	1) Small modular reactor (SMR) units 2) Large reactor units
Solar	1) Utility-scale solar photovoltaic (PV) systems 2) Commercial behind-the-meter (BTM) solar PV 3) Residential behind-the-meter (BTM) solar PV 4) Solar thermal systems
Wind*	1) Onshore wind 2) Offshore wind (fixed-bottom) 3) Offshore wind (floating)
Carbon Capture and Storage (CCS) Applications	1) CCGT new build and retrofit units equipped with CCS* 2) Coal new build with CCS or IGCC
Biomass	Dedicated Biopower
Energy Storage*	1) Utility-scale lithium-ion battery storage 2) BTM lithium-ion battery storage 3) Pumped storage hydro (PSH) 4) Long-duration energy storage (LDES) technologies*
Geothermal	1) Hydrothermal (Flash, Binary) 2) Enhanced (Flash, Binary)*
Hydropower	1) New Non-Powered Dams (NPD) 2) Existing Non-Powered Dams
Hydrogen*	1) Production (electrolysis) 2) Storage 3) Transport 4) Conversion and combustion, including CCGTs, CTs, and fuel cells*

** Includes emerging technologies evaluated by E3.*

Summary of RECOST Q1 2026 Updates

E3 has updated our Resource Cost (RECOST) forecasts to reflect material shifts in the policy environment and continuing secular market trends. RECOST also introduced new functions to support a broader range of use cases

Market Updates

+ **Policy trajectories continued to shift in Q4 2025, leading to the following updates:**
  - Tariff assumptions have been updated and applied across U.S. trading partners, impacting every technology but especially technologies dependent upon imports from China
    - On July 31, 2025, the *Further Modifying the Reciprocal Tariff Rates* Executive Order established reciprocal tariff rates for a defined list of countries and indicated that negotiations with other countries remain ongoing. As a result, the timing for tariff rates applicable to countries not included in the order is still uncertain
    - E3 has updated tariff assumptions in accordance with published executive orders, resulting in lower average rates than those assumed in Q2 2025 but now inclusive of Low-, Mid-, and High-rate options. E3 will continue to monitor tariff developments to ensure the latest updates are incorporated as additional guidance becomes available.
  - Foreign Entity of Concern (FEOC) updates (see right)
+ **Parallel to policy shifts, market data on resource costs continues to evolve rapidly, leading to the following updates:**
  - Natural gas new build costs continue to evolve, and E3 is partnering with Halcyon to leverage Halcyon's gas power plant cost data for the latest market intelligence for this technology
+ **Consistent with previous RECOST updates, E3 has also updated our market data for financing costs across resources**

Functional Updates

+ **Public Utility Revenue Requirement**
  - RECOST can now calculate the annual and levelized revenue requirement for new resources, applicable to any publicly owned utility (POU) analysis
+ **Dynamic capital structure**
  - Previously, leverage assumptions for new resources were based on NREL ATB trajectories; this option still exists in RECOST
  - E3 has added dynamic capital structure calculations so that debt is sized to reflect project cash flows dynamically and in concert with all other assumptions specific to a given resource
+ **Equipment sourcing now reflects a user-specified choice: domestic or foreign supply?**
  - Pending final guidance on Foreign Entities of Concern (FEOC) requirements to qualify for federal tax credits, E3 has introduced updates to reflect the fundamental economic choice: should projects seek to onshore their supply chains or remain dependent on foreign imports?

Resource Cost Assumptions

RECOST: Q1 2026

Energy+Environmental Economics

Diverging 2025 Federal Policy Impacts Among Technologies

Relative to the Baseline of Policy on January 19, 2025, E3 Evaluates the Following Policy Impacts on Selected Resource Costs

▼: Positive Impact (Cost Decline) ▲: Negative Impact (Cost Increase) ⇆: Impact Unclear /No Change

	Solar PV	Wind	Li-ion Batteries	Geothermal	Nuclear	Thermal / CCS
Tax Credits	▲ Final qualification year 5 years earlier than previous minimum, and >10 years earlier than prior target		Qualification preserved through 2032, with no potential for extension allowed under the IRA			⇆ 45Q preserved, and 45X revision supports coal
Safe Harbor Provisions	▲ Safe harbor was ultimately preserved in August Treasury guidance, but 5% cost test was removed to ensure physical work test is necessary to comply		⇆ Safe harbor timeline preserved with same tests as pre-IRA			⇆ No change
FEOC Impact	▲ Compliance and cost impacts will look different across technologies due to dependence on imports, but novelty and severity of FEOC guidelines imposes near-term risk across technologies			⇆ FEOC unlikely to materially increase resource costs under current policy guidance		⇆ 45Q risk is elevated but underlying technology is derisked
Depreciation	▼ 100% bonus depreciation restored and extended indefinitely			⇆ Bonus restored, heat pumps excluded from 5-year MACRS (legacy only)	▼ 100% bonus depreciation restored and extended indefinitely	⇆ 45Q dynamics preserved but underlying technology unchanged
Tariffs	▲ Medium-high impact, high certainty	▲ Low impact, high certainty	▲ Medium impact, high certainty	⇆ Minor risk (potentially drilling equipment)	⇆ Nuclear fuel (commodity risk) currently exempted	⇆ Supply chain well-positioned
Non-Tariff Executive Orders / Agency Action	▲ DOI/BLM land restrictions likely to impact wind more than solar, but both exempted from actions intended to support additional generation		⇆ Li-ion unaffected by non-tariff actions, and LPO changes may support supply chain	⇆ Potential impact of DOI/BLM land restrictions but unlikely to target geothermal	▼ Multiple EOs supporting existing and emerging nuclear tech	⇆ EOs, EPA actions favor more gas generation but mandated generation may alter economics

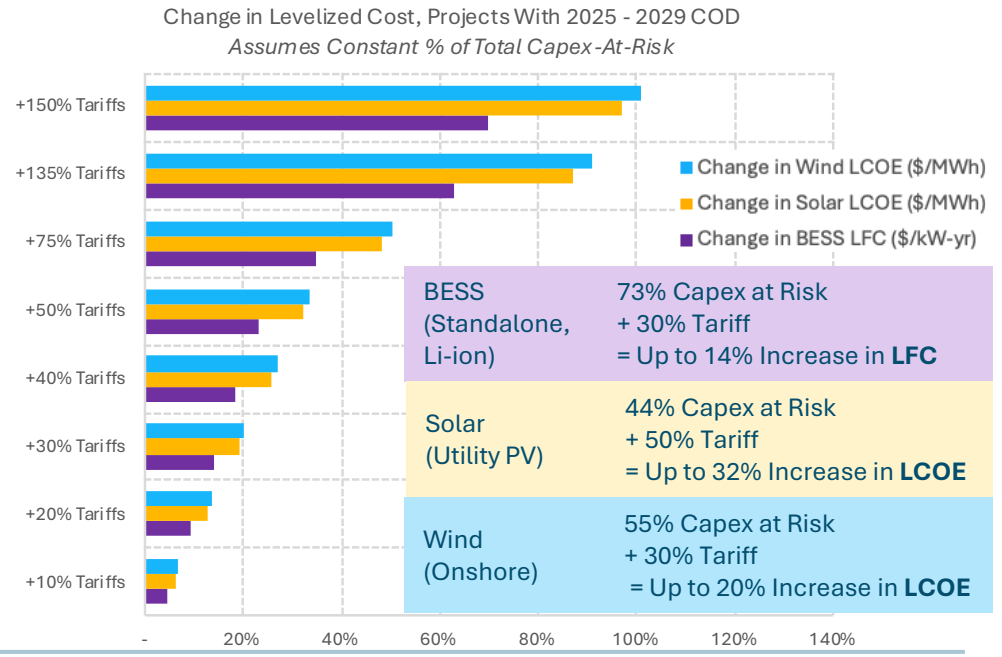
Tariff Impacts

RECOST Assumptions: Q1 2026

- **Both the capital subject to tariffs and the rate applied to that capital has changed significantly throughout 2025**
- **E3 isolates the capex at risk by disaggregating the major components for a given technology and researching their supply chain geographies; then E3 confirms if that component is subject to an explicit tariff, and identifies the current or highest-confidence rate**
  - E3 also adjusts capex at risk in response to compliance with FEOC and domestic content requirements separately for every resource
  - Users may also select a tariff rate of 0% based on project specific characteristics when working with the RECOST model
- **Tariff impacts and timelines will vary by project and could vary significantly *for the same project* over time, so the default inputs shown here should not be assumed to apply for all projects; instead, E3 aims to show a reasonable tariff impact**
- **For wind and battery resources, RECOST update includes low/mid/high levels of tariff impacts on capital cost at-risk, based on IEEPA tariffs (reciprocal, fentanyl, etc.) [1]**
  - For solar, in addition to IEEPA tariff, AD/CVD tariffs are also applied

Current E3 RECOST Tariff Assumption

Technology	Key Imports (Countries)	Capex at Risk (% Total)	Weighted Average Tariff (% Increase Applied to Capex at Risk)
Wind (Onshore)	Nacelle, rotors, towers (Mexico, Germany)	55%	Low:10%; (lowest reciprocal tariff) High: 50%; (highest reciprocal tariff)
Solar (Utility PV)	Module and BOS (Vietnam, China)	57%	Low: 30%; (lowest reciprocal tariff) High: 135%; (IEEPA tariffs combined with minimum level of AD/CVD)
BESS (Standalone, Li-ion)	Cabinets and BOS (China)	73%	Low:10%; (lowest reciprocal tariff) High: 50%; (highest reciprocal tariff)



[1] President Trump's tariffs under the IEEPA are additional duties imposed on imports from various countries, citing national emergencies related to economic concerns, trade reciprocity, or specific issues like the illicit trafficking of fentanyl.

Tax Credit Details for Selected Technologies

RECOST Assumptions: Q1 2026

- **Wind and solar projects that *begin construction* before July 4, 2026 should have 4 years to reach COD while still claiming full credit value, based on August 2025 Treasury guidance[(1)]**
- **To balance legislative text against ongoing policy implementation developments, E3 assumes wind and solar projects may claim full tax credit value through 2030; this may not be true for all projects that begin construction in 2026**
- **For technologies allowed to claim full credit value upon beginning construction before 2033, E3 applies the phase-out schedule and safe harbor that was stipulated in the Inflation Reduction Act[(2)]**
- **Additional details regarding E3's tax credit assumptions for each technology are available in the full RECOST report for Q1 2026, available at https://shop.ethree.com/**

Tax Credit Assumptions

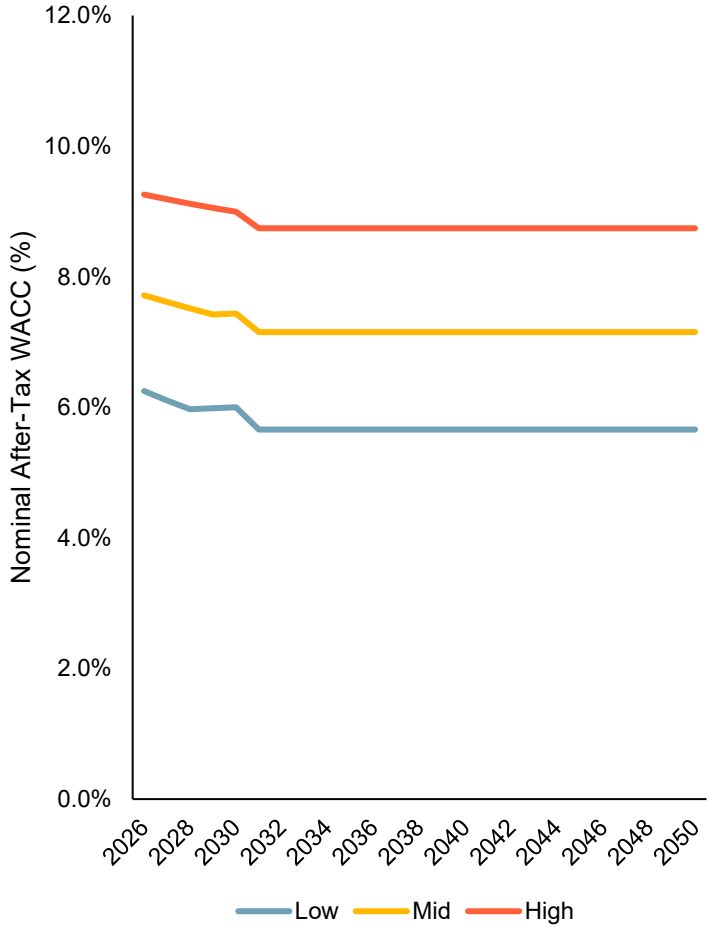
	Onshore Wind	Offshore Wind	Utility-Scale Solar	Geothermal	Standalone Li-ion Battery	Nuclear	Hydrogen Electrolyzer
IRA Credit Election	**PTC**	**ITC**	**PTC or ITC**	**PTC or ITC**	**ITC**	**PTC or ITC**	**PTC**
Tax Credit Eligibility							
Last Year for Safe Harbor Claim	2026	2026	2026	2032	2032	2032	2027
Safe Harbor Years	4	4	4	4	4	4	4

(1) https://www.projectfinance.law/publications/2025/july/effects-of-one-big-beautiful-bill-on-projects/
(2) https://www.whitecase.com/insight-alert/amendments-ira-tax-credits-senate-budget-bill

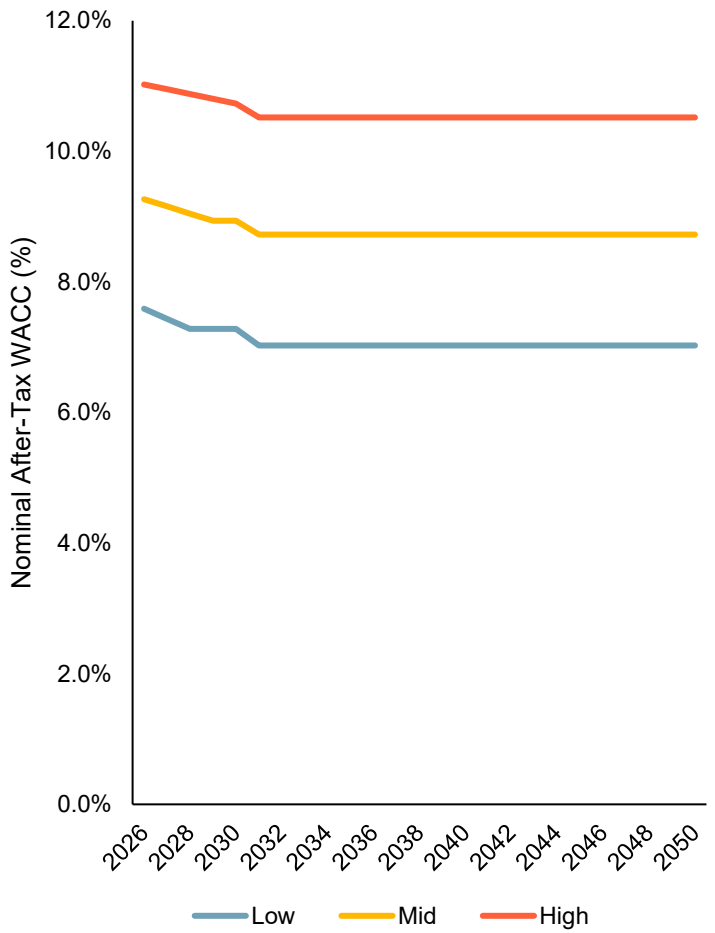
Financing Costs (WACC) for Selected Resources

RECOST Assumptions: Q1 2026

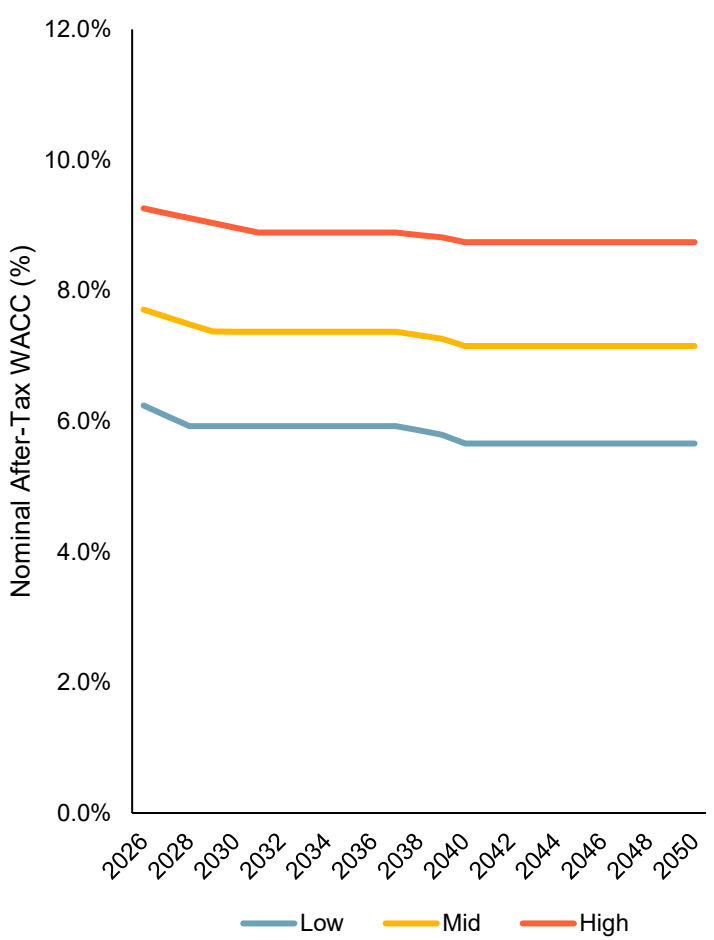
Utility-Scale Solar PV & Onshore Wind



Fixed-Bottom Offshore Wind



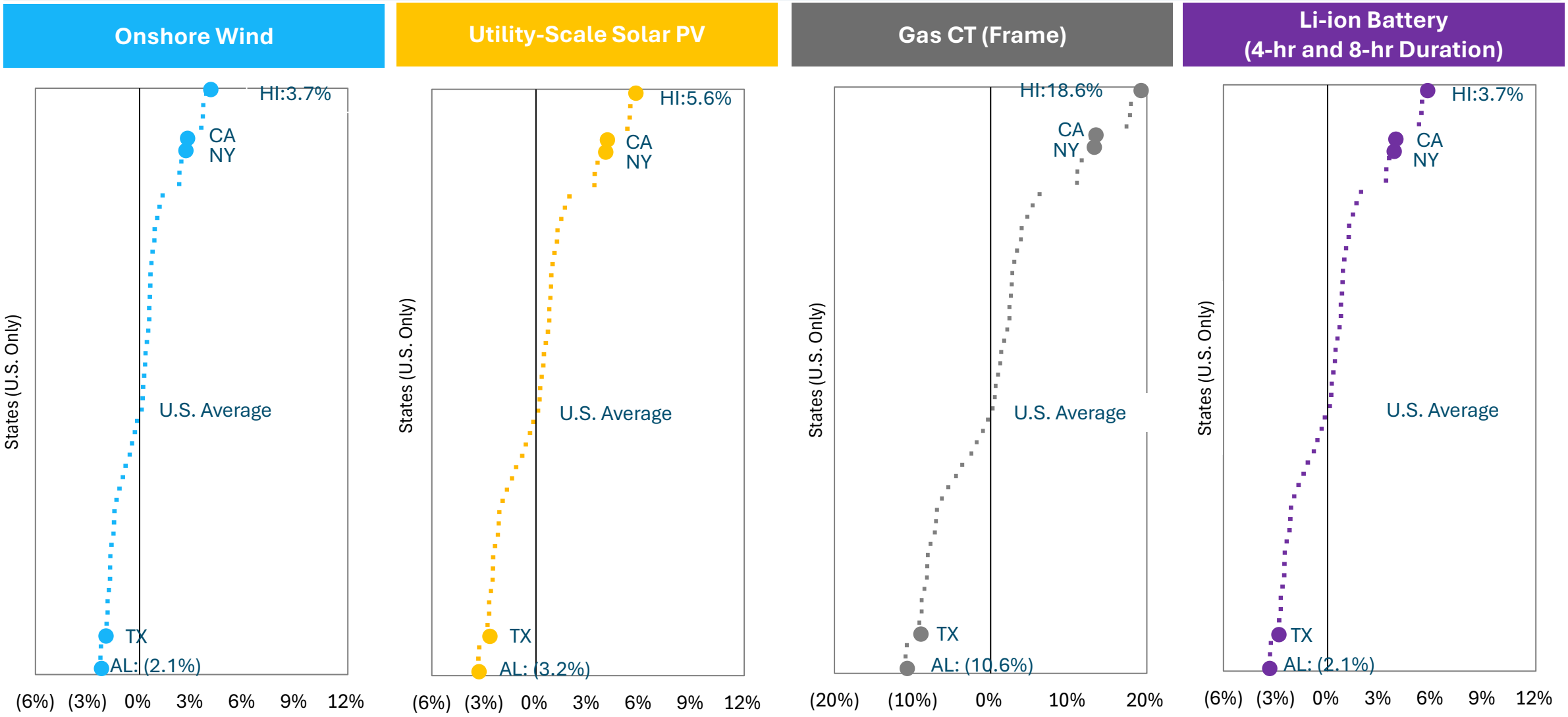
Utility-Scale Li-ion Battery Storage *



* Battery Storage WACC changes when tax credits expire, affecting project economics and timing

State-Specific Cost Adjustments – Selected Technologies

RECOST Assumptions: Q1 2026



Gas Plant Cost Update

E3 Partnership With Halcyon

Halcyon

Sorting Signal From Noise in Gas Plant Costs

E3 Partnership With Halcyon

- **There has been significant disruption in the cost of building new gas power plants since 2020**
- **Cost shocks have impacted plants currently in development and plants in the planning stage**
  - Plants in development have been subject to commodity and labor cost increases, including costs associated with finding the necessary workers to build and operate gas power plants as competitive pressure has intensified
  - Plants in the planning stage have faced the same pressures as plants in development, but have also been subject to the incremental and significant costs associated with procuring new gas combustion turbines from OEMs
- **Based on research and discussions with developers and utilities, E3 has concluded that purely "bottom-up" or fundamentals-based estimates of new gas plant costs are not appropriate for setting near-term cost expectations (i.e., expectations for new plants reaching COD between 2026 and 2030)**
- **To improve the accuracy and robustness of near-term resource cost forecasts for gas plants, E3 is partnering with Halcyon to leverage Halcyon's Gas Power Plant Tracker in this RECOST update[(1)]**
  - Halcyon's Gas Power Plant Tracker compiles comprehensive information on newly proposed and in-development natural gas power plants across the United States
  - Drawing from state public utility commission (PUC) dockets, environmental filings, and the U.S. Energy Information Administration (EIA) datasets, the Tracker consolidates key project details into a structured, research-ready dataset
- **After 2030, E3 assumes reduced demand will moderate the cost of building new gas plants**
  - We assume the near-term shock of materially higher demand from data centers and other large loads will be absorbed by suppliers, and that longer-term compute needs will not incite equivalent shocks in the 2030s
  - Supply chains may expand over this period as well, but current turbine manufacturing levels are not expected to increase meaningfully beyond 2030 at this time

(1) https://halcyon.io/gas-power-plant-tracker

Sample of Natural Gas Plant Cost Data

Data

- Real-world estimates of existing and planned fossil plants, as submitted in utility filings with public utility commissions
- ~180 plants' data reviewed including both planned and now-operational facilities

Key Takeaways

- Frame CTs remain the lowest-cost new gas tech (~$1,200 to $1,800/kW delivered in 2030)
- Aeroderivative CTs cost more and exhibit more variance (~$1,200 to $2,200/kW in 2030)
- Combined-cycle (H/J-class) units continue to require higher upfront capex (~$1,800–$2,300/kW in 2030)
- RICE plants are most expensive (~$2,200–$3,300/kW in 2030)
- Conversions (coal → gas) remain lower cost (~$150 to $300/kW) but only when reusing existing infrastructure

Capital Expenditures for New Selected Planned Gas Plants & Conversions

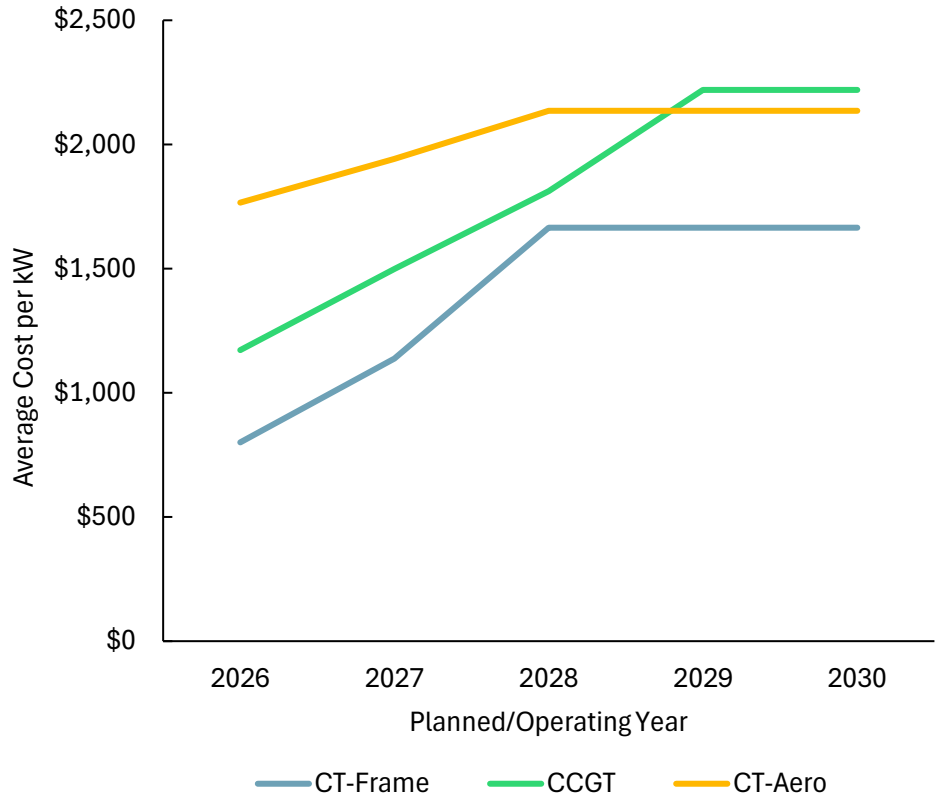
Technology	Model Type	Capacity (MW)	Cost ($/kW)	Incl. AFUDC?	Incl. Tx Cost?	State	Technology Notes
SCGT – Frame	GE 7F.05	460	**$747**	Yes	No	IN	Large F-class frame turbine; lowest-cost new gas peaker
SCGT – Frame	Siemens SGT6-5000F	1,160	**$2,069**	No	Yes ~$400/kW	TX	Multi-unit peaker; H_2-capable (30%)
SCGT – Aero	GE LM6000PC	84	**$920**	Not Stated	Not Stated	AZ	Fast-start, flexible peaking duty
RICE	Wärtsilä 18V50SG	112	**$3,341**	No	No	LA	Modular engines; H_2-capable (25%)
CCGT – F-Class	Siemens SGT6-5000F	745	**$1,579**	No	Yes ~$188/kW	KY	Combined-cycle with additional steam turbine
CCGT – J-Class	Mitsubishi 501 JAC	754	**$1,951**	No	No	TX	Advanced combined-cycle; H_2-capable (30%) capable
CCGT – H-Class	GE 7HA.03	645	**$2,144**	No	No	KY	Latest H-class 1×1; H_2-ready
Hybrid SCGT + RICE	2 F-class CT + 6 RICE	600	**$1,181**	No	No	ND	Fast-response plant for capacity support
Conversion: Coal → Gas	2×558 MW units	1053	**$270**	Not Stated	Not Stated	TX	Legacy fuel conversion

Note: Cost expressed in $2025. Some costs include AFUDC and project-specific transmission upgrade or new build cost. RECOST calculates levelized costs excluding project-specific transmission-related costs, and assumes a Construction Financing cost factor of 1.11

Natural Gas Plant Cost Expectations

- **E3 continuously reviews and monitors data from utility, developer, market analyst, and market data aggregator sources for completed, planned and approved plants and the costs in RECOST**
- **Public Utility Commission (PUC) docket filings aggregated in Halcyon's Gas Power Plant Tracker support higher cost expectations for CCGT plants in the long run, although short-run supply chain pressures have compressed this premium for plants reaching COD through 2030(1)**
- **The data is supported by recent transactions that imply new build cost expectations greater than $2000/kW in many cases**
  - Historically, acquisition costs relative to new build costs have implied a 2x ratio of acquisition costs to new build requirements
  - **Constellation**'s acquisition of **Calpine** reflects an implied value of $1100/kW; a haircut of 50% from new build costs implies expectations of $2200/kW for new plants(2)
  - **Blackstone**'s acquisition of **Potomac Energy Center** (VA) for roughly $1 billion implies a transaction value of $1300/kW, translating to implied new build costs of $2600/kW(3)
- **Recently, evidence has begun to emerge that pricing moderation is possible, although utility planning does not yet reflect such moderation**
  - **NRG Energy**'s acquisition of 13 GW of gas-fired generation capacity from **LS Power** for $12.5bn implies a transaction value of $961/kW; this is likely inflated by the inclusion of **CPower**'s virtual power plant business(4)
  - **Vistra**'s recent acquisition of **Cogentrix**'s 5.5 GW portfolio of CT, CC, and Cogeneration plants for $4.7bn (inclusive of tax benefits netted from public announcement) represents a transaction value of roughly $865/kW, or $1,730kW in implied new build costs(5)

Average Cost Per kW From Halcyon's Gas Power Plant Tracker



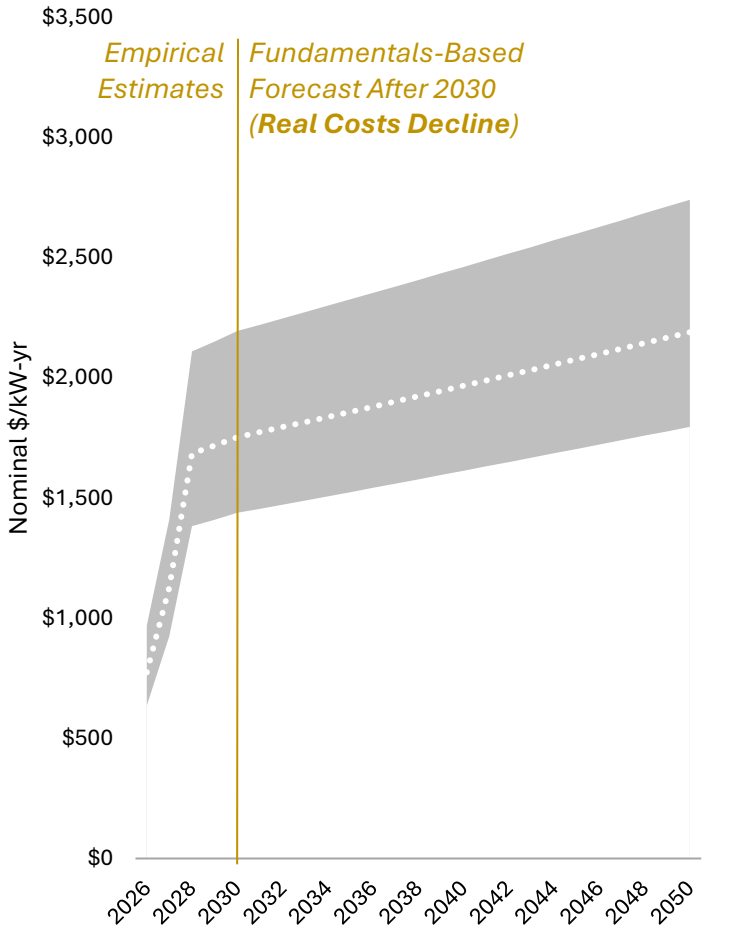
(1) https://halcyon.io/gas-power-plant-tracker
(2) https://www.capitaliq.spglobal.com/apisv3/spg-webplatform-core/news/article?Id=87198138&KeyProductLinkType=2
(3) https://www.capitaliq.spglobal.com/apisv3/spg-webplatform-core/news/article?id=87251410&redirected=1
(4) https://www.capitaliq.spglobal.com/apisv3/spg-webplatform-core/news/article?KeyProductLinkType=2&id=88963579
(5) https://investor.vistracorp.com/2026-01-05-Vistra-Adds-to-its-Industry-Leading-Generation-Portfolio-with-Acquisition-of-Cogentrix

Upfront Capex Forecasts for Natural Gas Plants

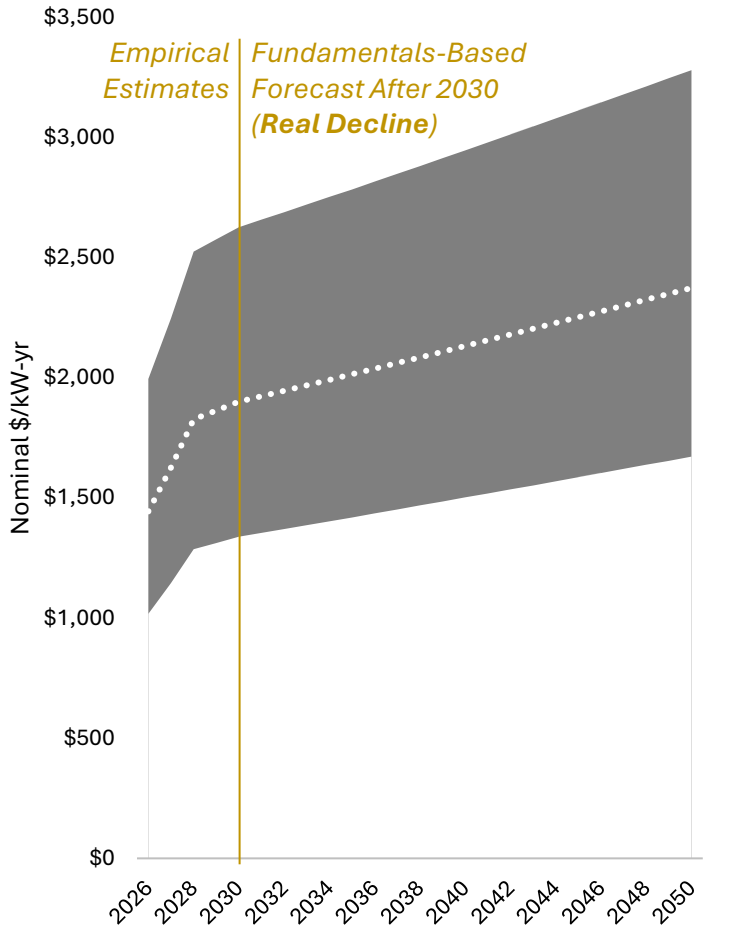
RECOST Assumptions: Q1 2026

Halcyon

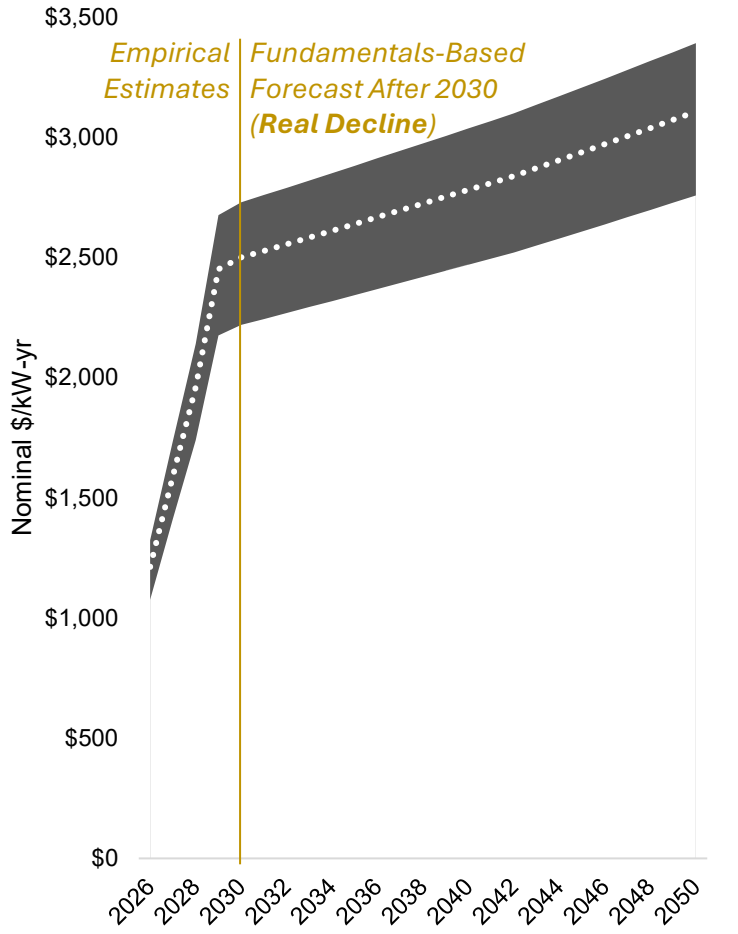
CT-Frame



CT-Aero



CCGT



Across technologies, expected costs increase for resources reaching COD through 2028; utilities expect moderation of cost increases to begin thereafter, and E3 assumes that real costs will decline after 2030

Note: AFUDC, Tx cost, and tariff impacts are not included in the figures. See later analysis for tariff impacts.

Foreign Entity of Concern (FEOC) Update

Energy+Environmental Economics

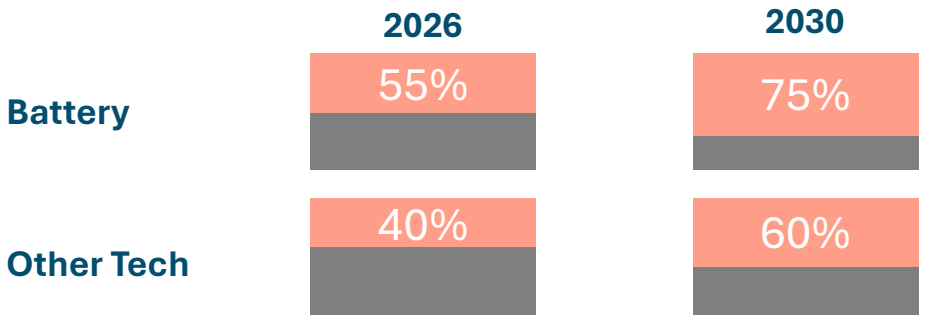
Overview of Foreign Entities of Concern (FEOC) and Domestic Content Requirements

- **Compliance with FEOC rules is a mandatory minimum requirement to qualify for the base Investment Tax Credit (ITC) or Production Tax Credit (PTC) starting in 2026**
- **Domestic Content requirements in the IRA set thresholds for claiming additional 10% bonus ITC and PTC**
- **E3 expects that developers will ultimately choose between two options: comply with FEOC by meeting domestic content requirements for a "double benefit", or elect to decline tax credits completely and seek foreign sourcing for all imports at lowest possible cost**

FEOC Compliance

(To qualify for the base tax credit)

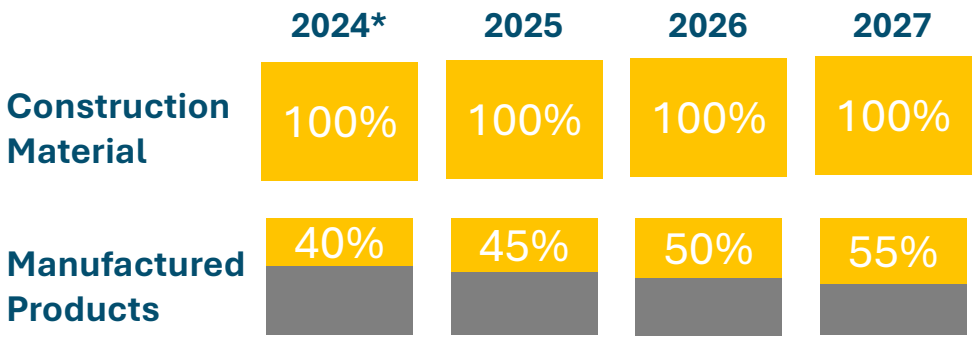
% of manufactured products used that are **not mined, produced, or manufactured** by prohibited foreign entities owned by China, Russia, North Korea, or Iran



Domestic Content

(To qualify for additional 10% bonus tax credit)

% of total project cost or manufactured product cost must be attributed to **U.S.-made components**



Note: the year indicates in the table represent the requirement of **construction start year.**
*** Offshore wind projects starts at 20% domestic content requirement**

Source: https://www.projectfinance.law/publications/2025/january/updated-domestic-content-calculations/

FEOC Decision Logic in RECOST: Battery Storage Example

BESS is mostly imported from China, which will threaten FEOC compliance starting in 2026 and raises the risk of high import tariffs. To claim ITC and lower tariff impacts, BESS projects may choose to use US-manufactured products, depending on U.S. supply capacity

Option 1: Import from China Under Current Supply Chain, Not Compliant with FEOC

✗ Not Compliant With FEOC

✗ Not Compliant With Domestic Content

Con
Highest tariff exposure, no ITC

Pros
Low capital costs by importing from China

Modeled in RECOST

Option 2: FEOC-Compliant Via Imports from non-FEOC countries (e.g., Japan)

✓ Compliant With FEOC

✗ Not Compliant With Domestic Content

Con
Higher capital cost, moderate level of tariff exposure remains

Pros
Base ITC

Not modeled in RECOST: Manufacturing capacity from other non-FEOC countries may not be sufficient, moderate level of tariffs remains, and project can comply with additional domestic content requirement under option 3

Option 3: FEOC- and Domestic Content-Compliant Via Using Domestic Supplies

✓ Compliant With FEOC

✓ Compliant With Domestic Content

Con
Highest capital cost to comply with both FEOC and domestic content rules

Pros
Base + bonus ITC, minimum tariff exposure

Modeled in RECOST

FEOC Impacts: Sample Calculations for Utility-Scale Resources

	4-hr Li-ion Battery Built in 2026	Land-Based Wind Built in 2026	Solar PV - Tracking Built in 2026
Default Capital Cost Before Adjustment	**$1,473/kW ***	**$1,598/kW***	**$1,386/kW***
% Additional Capex Needed for FEOC Compliance (% Capex required to be [Non-FEOC entities]) – (% Capex recent supply from [Non-FEOC entities])	55%-29%= **26%** *(required level at 55%; 29% imports already sourced from non-FEOC)*	40%-40%= **0%** *(almost all wind imports are from EU, non-FEOC)*	40%-0%= **40%** *(almost all solar imports are from China-owned companies)*
Increase in Impacted Capital Cost to Meet FEOC Ratio of U.S. Manufacturing Costs to Foreign Costs	**1.31x** *(US manufactured cost is 1.3x of China cost)*	**1.0x** *(US manufactured cost is almost the same as EU cost)*	**2.9x** *(US manufactured cost is 2.9x of China cost)*
Impacted Capital Cost Subject to Cost Increase	**73%** (BOS + Cabinet)/(Total Cost)	**55%** (Turbine)/(Total Cost)	**57%** (BOS + Module)/(Total Cost)
FEOC Capital Cost Adjustment Increase	$1,473/kW x 26% x 1.31 x 73% **= $372/kW**	$1,598/kW x 0% x 1.0 x 55% **= $0/kW**	$1,386/kW x 40% x 2.9 x 57% **= $916/kW**
% of Additional Capex needing to be US-Manufactured for Domestic Content Bonus Credit Compliance Incremental to FEOC Requirements	40% - **26%** = **14%** *(DomCon requirement is 40%)*	**0%** *(already meets DomCon requirement)*	40% - **40%** = **0%** *(DomCon requirement is 40%)*
Domestic Content Capital Cost Increase	$1,473/kW x 14% x 1.3 x 73% **= $196/kW**	$1,598/kW x 0% **= $0/kW**	$1,386/kW x 0% **= $0/kW**
Final Capital Cost	**$1,473/kW** x [1-(26%+14%) x 73%] + **$372/kW** + **$196/kW** = **$1,607/kW **** (9% higher than original cost)	**$1,598/kW** + **$0/kW** + **$0/kW** = **$1,598/kW **** (comparable to original cost)	**$1,386/kW** x [1-(40%+0%) x 57%] + **$916/kW** + **$0/kW** = **$1,986/kW **** (43% higher than original cost)

* All cost values are in $2025 ** Amount eligible to claim bonus tax credits

Publicly Owned Utility Cost Estimates

Energy+Environmental Economics

Context: IPP Versus Public Utility Cost Estimates

+ The default resource ownership perspective in RECOST is the Independent Power Producer (IPP)

- IPP ownership is assumed to reflect that an unregulated entity develops the project, which enables the IPP to take advantage of the tax deductibility allowances for interest and depreciation
- IPP ownership also means that the projection of asset cash flows does not need to reflect regulation of the rate of return or revenue collected by the asset owner

+ In this update to RECOST, we incorporate the publicly owned utility perspective

- While the fundamental operating characteristics of the asset are assumed to be the same across the IPP and public utility perspective, two key methodological differences are necessary for this new perspective:
  1) Instead of estimating cash flow to equity as the final annual metric of the asset's financial performance, as is the case for the IPP perspective, the public utility perspective focuses on estimating the revenue requirement we would expect the utility to collect from customers for the cost of a new project
  2) The Weighted Average Cost of Capital (WACC) inputs are no longer tied directly to market estimates, since the inputs in WACC for a public utility reflect the absence of equity
- In a forthcoming update, E3 will incorporate the Investor Owned Utility (IOU) perspective in RECOST as well

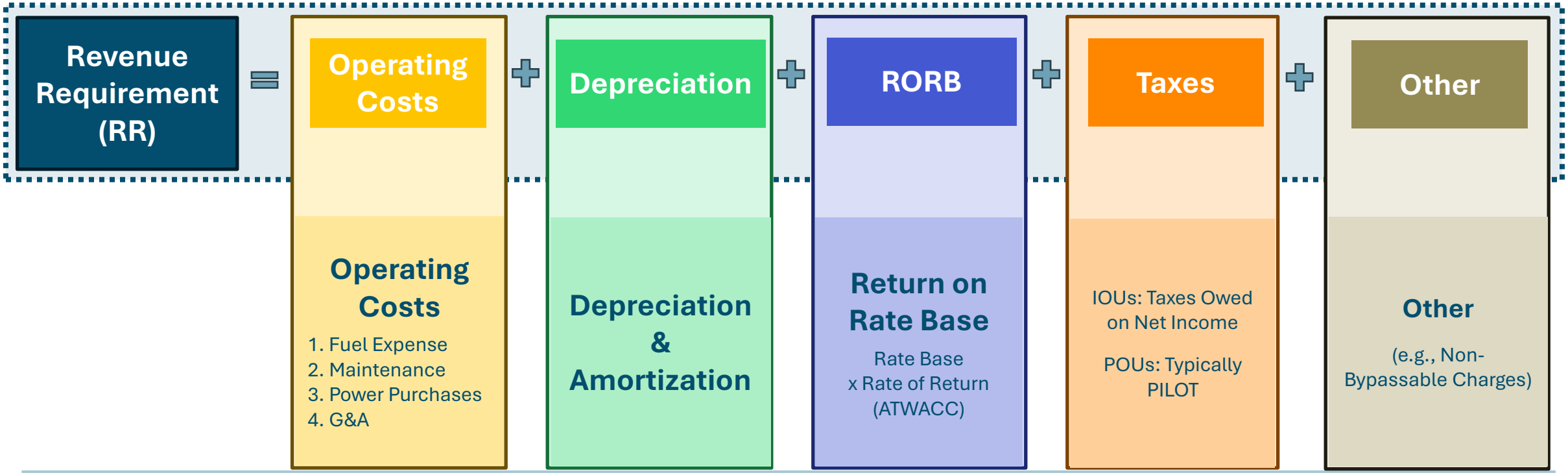
Revenue Requirement Calculations in RECOST

- **A revenue requirement (RR, or RevReq) is the total amount of money a utility must collect over a given period to recover its prudent operating costs, depreciation, taxes, and a fair return on invested capital**
- **How and which specific costs are included in the Revenue Requirement can vary slightly based on the state regulations and utility operational costs**
- **Q1 2026 RECOST now includes levelized RR calculation that could apply to any regulated utility, including Investor Owned Utilities (IOUs) and Publicly Owned Utilities (POUs), and which is currently calibrated for POU calculations**
  - In a forthcoming update, E3 will incorporate the Investor Owned Utility (IOU) perspective in RECOST as well

Revenue Requirement

Methodology

+ **Revenue Requirement comprises various components**
  - *Data for actual RR for utilities may be sourced from company reports, FERC Form filings, and third-party data vendors; the calculations of RR in RECOST are generalized to reflect the categories below*
+ **POU revenue requirement calculations require additional context to reflect the unique status of these entities in U.S. regulation; E3 reflects the considerations specific to POUs in RECOST**
  - Inputs that are specified to POU parameters include tax burden, capital structure, the cost of capital, debt term and cost, tax credit claims, depreciation, and the levelization of revenue requirement instead of cash flows to equity



Resource Cost Forecasts

RECOST: Q1 2026

Energy+Environmental Economics

Levelized Fixed Costs (LFC)

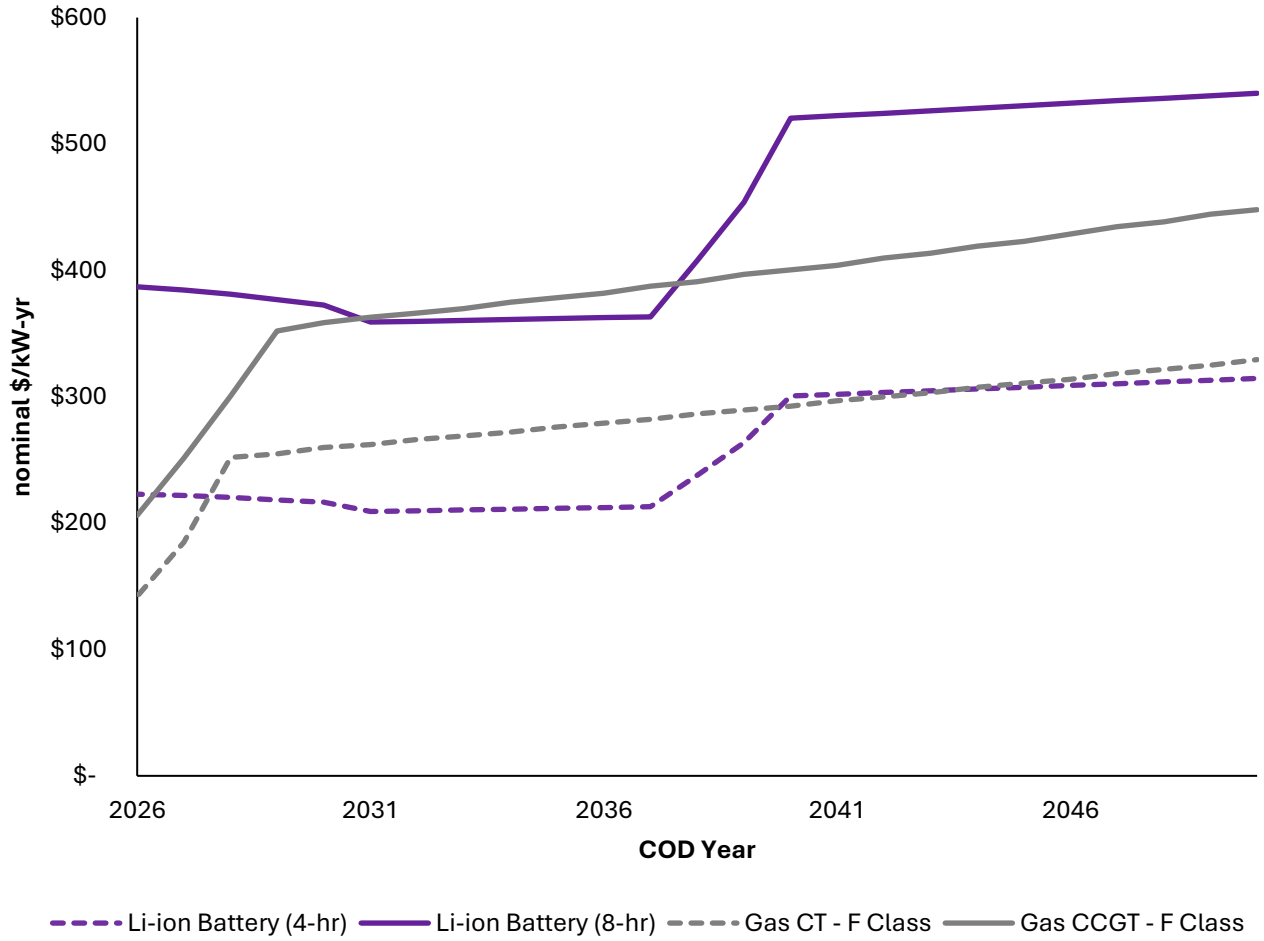
RECOST Forecasts: Q1 2026

- LFC remains a **common metric for many utility resource planning processes**, and is a core output analyzed in RECOST
- IRA tax credits for BESS and geothermal are assumed to extend through 2032, with phase-out and safe-harbor assumptions extending eligibility through 2039 in COD terms
  - After 2032, E3 assumes the IRA tax credit phase-out trajectory applies
  - E3 assumes that 4 years of safe harbor are feasible now that the physical work standard has been confirmed for safe harbor
- Tariff impacts are assumed through 2030

Note: All projections shown in this analysis are an estimate of future resource costs. Results for LFC or LCOE do not constitute market price forecasts for a given technology or region.

E3 LFC Forecast, Generic U.S. Location, by COD Year

Nominal $/kW-yr



Levelized Cost of Electricity (LCOE)

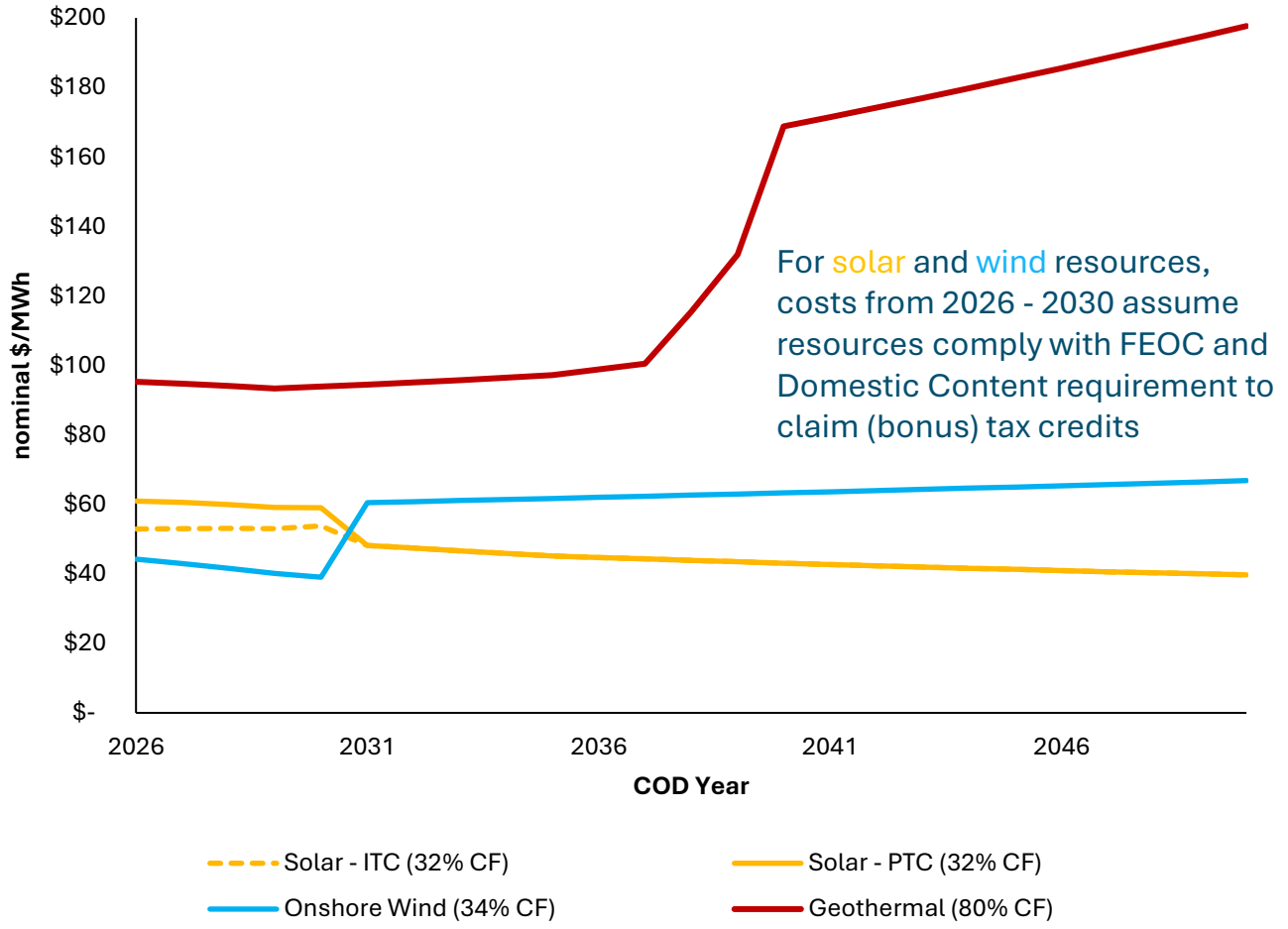
RECOST Forecasts: Q1 2026

- Solar and onshore wind resources are uniquely restricted in their ability to claim tax credits under the OBBBA; E3 assumes that the last year solar and wind resources will reach COD while claiming tax credits is 2030 as a result
- The tax credit forecast for geothermal aligns with E3's assumptions for BESS (see previous slide)
- Tariff impacts are assumed through 2030

Note: All projections shown in this analysis are an estimate of future resource costs. Results for LFC or LCOE do not constitute market price forecasts for a given technology or region.

E3 LCOE Forecast, Generic U.S. Location, by COD Year

Nominal $/MWh



Stepping Back: What's in a Contract?

Levelized Costs Versus PPAs

+ **RECOST calculates the recovery of all project costs over the technical life of the project, discounted by a specified cost of capital and levelized over total project output (or capacity, for LFC)**
  - By default, IPP financing assumptions are used to calculate the cost of capital
  - Term (years) used for debt is always matched to PPA term, even though costs post-PPA are still captured in the final LCOE or LFC output
+ **It may not always be appropriate to compare levelized costs to PPA price offers, for a variety of reasons:**
  1) Market evidence is overwhelming that PPA term tends to fall below operating life over which levelized costs are calculated; LevelTen Energy estimates the average term length for solar and wind PPA offers in Q3 2024 at ~15 years
  2) PPAs typically recover less than 100% of project costs; the term for debt used to finance the project will not exceed the PPA term
  3) PPAs may be priced as an initial value that escalates over time, or as a flat nominal price for the contract term
  4) In any given year, for any given technology, a PPA will reflect the degree to which buyers versus sellers have greater pricing power, which are shaped in large part by factors exogenous to this analysis
     1) Supply chain cost shocks or improvements are typically not foreseeable in terms of exact timing
     2) Macroeconomic shocks such as inflation, and ensuing changes in the Federal Funds rate can lift or depress pricing dynamics
     3) Credit rating upgrades or downgrades can impact leverage potential and associated PPA pricing for reasons specific to the developer
+ **Even if we were to assume that economic life is equal to technical life, and the PPA will recover 100% of project costs, this does not mean that LCOE or LFC are equivalent to a PPA price: the quantity of energy or capacity guaranteed by a PPA does not need to be equal to technical (available) generation or capacity**
  - PPAs are often signed for a portion of plant output, either to facilitate multi-party contracting arrangements or because a developer is being conservative in their guarantees (or is forced into being conservative), inclusive of potential curtailment adjustments or risk that may be shared between the buyer and seller of power

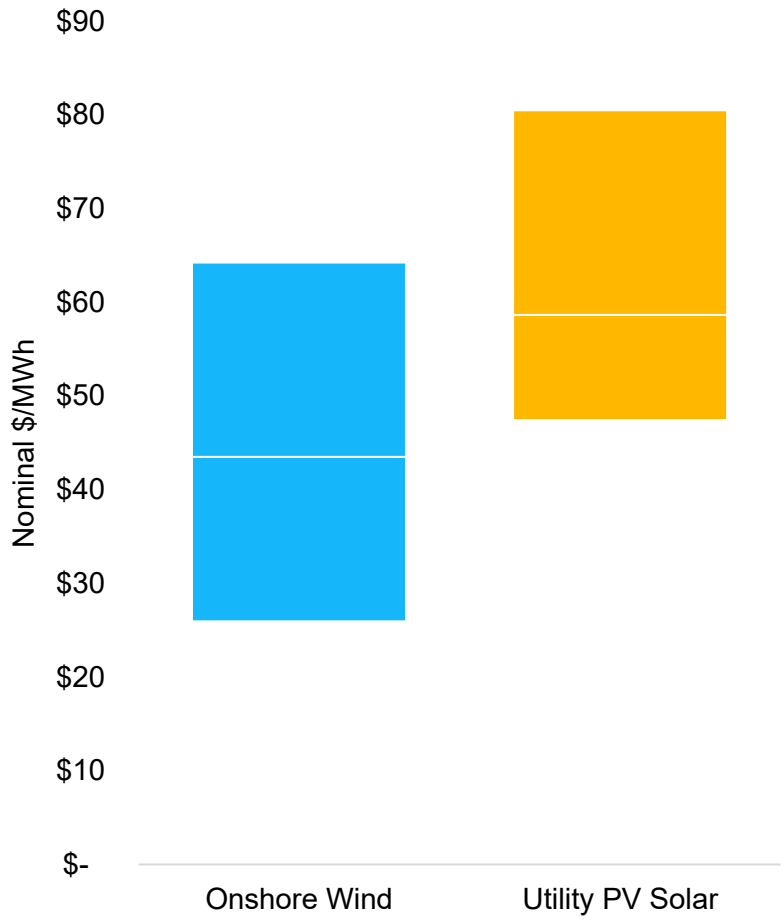
Implied Flat Nominal PPA Prices Through 2030

RECOST Forecasts: Q1 2026

- Each point shown on the chart corresponds to the implied PPA price that E3 would expect an asset to sign in that year, for a term of 20 years
  - For example, E3 would expect a generic solar project claiming PTC with an expected capacity factor of 33% to contract at $59/MWh in nominal terms in 2030, all else being equal
- Estimates shown here correspond to E3 expectations based on market fundamentals, and E3 expects individual project contracts may differ materially from these forecasts
- Solar and wind generation remain the most cost-competitive source of clean energy in PPA terms through 2030 under default tariff and tax credit assumptions, retaining a cost advantage relative to CCGTs running at 60% capacity factor in E3's analysis

E3 Flat Nominal PPA Forecast, Generic U.S. Location, 2030 COD

Nominal $/MWh



Three Key Factors Drive E3's Low and High Forecast

Capital Cost
Financing Cost
Tariff Rate and Exposure

Other Factors Will Vary Significantly for Specific Projects and Locations

Interconnection Cost
Labor Cost
Land Lease Cost
Tax Credit Rate / Schedule
Capacity Factor
Fuel Cost (Where Applicable)

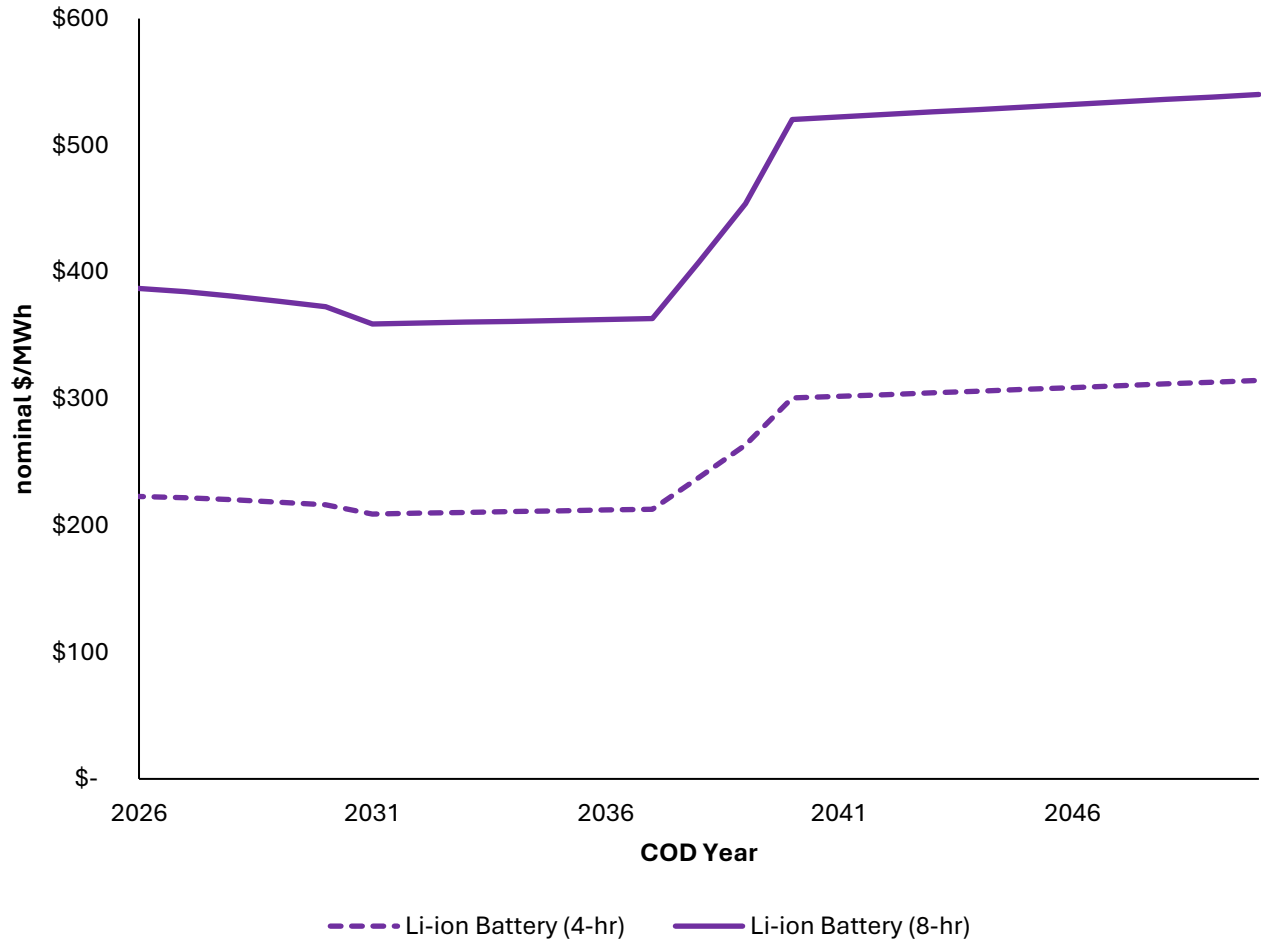
Levelized Cost of Storage (LCOS)

RECOST Forecasts: Q1 2026

- Battery storage costs moving forward will be shaped by multiple factors, including but not limited to commodity input costs and supply chain dynamics, both of which are shaped in part by trade policy
- Battery development activity will likely continue to migrate towards Energy Community jurisdictions after passage of the IRA, taking advantage of siting flexibility, as this potential bonus credit was not removed by the FY25 Budget Reconciliation Bill[2]

E3 LCOS Forecast, Generic U.S. Location, by COD Year

Nominal $/MWh[1]



[1] Levelized Cost of Storage is LFC normalized by the annual storage discharge (hours): assumes 250 cycles per year, 100% depth of discharge, and 80% round-trip efficiency for pumped hydro; and 365 cycles per year, 90% depth of discharge, and 85% round-trip efficiency for Li-ion battery; excludes charging cost

[2] https://www.ethree.com/energy-community-adder/

Public Utility Cost Estimates

RECOST: Q1 2026

Energy+Environmental Economics

Comparison of Levelized Fixed Costs

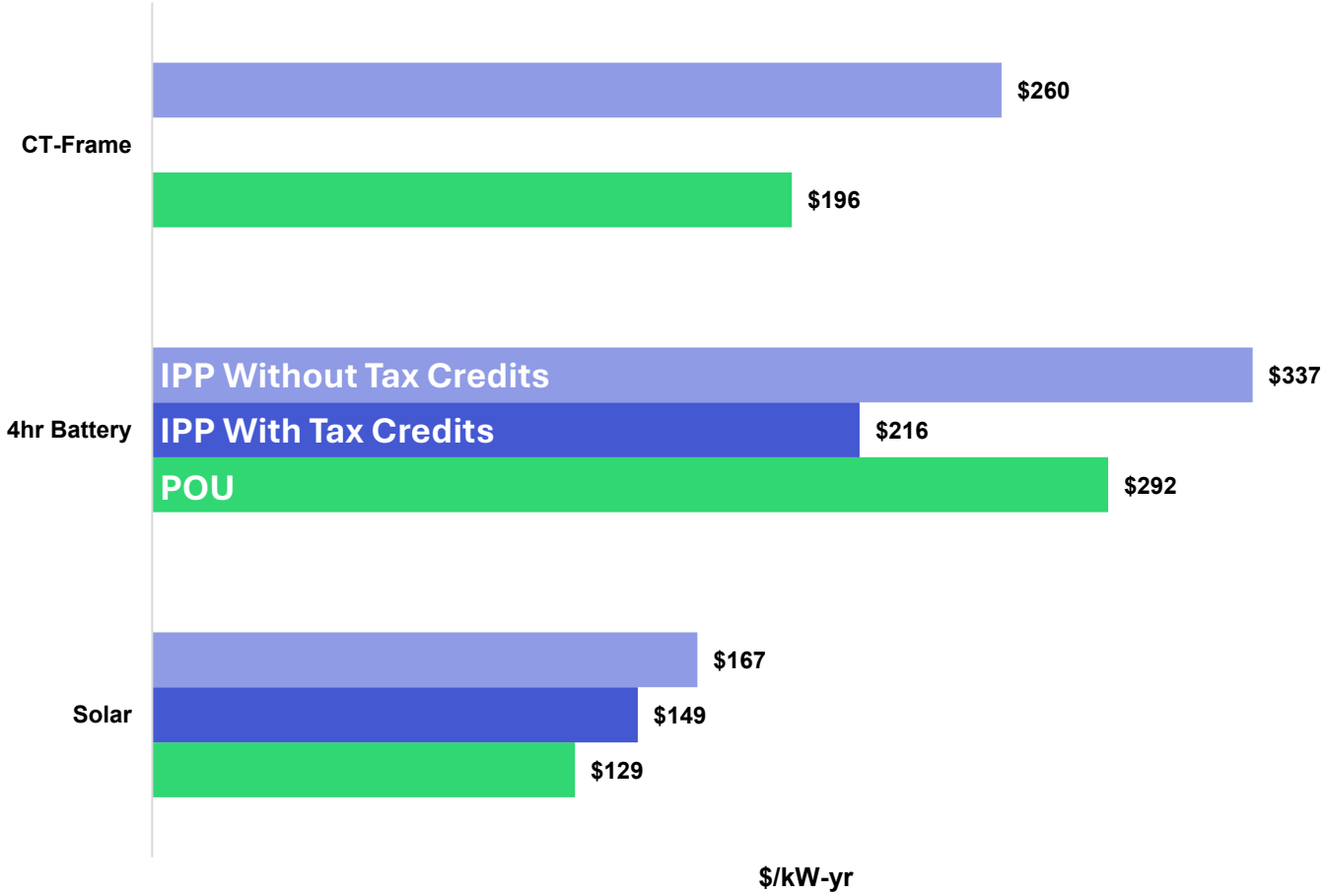
Publicly Owned Utility (POU) Versus Independent Power Producer (IPP) Financing Parameters

Nominal Levelized Fixed Cost (LFC), 2030 COD, Generic U.S. Location

Where tax credit benefits are not available, levelized Revenue Requirement for POU fixed costs is lower than IPP levelized fixed costs…

… whereas MACRS depreciation and tax credits bring BESS costs below POU battery costs …

… but POU costs for new solar may be lower than IPP costs even with tax credits, depending on tariff levels.



System Planning Using RECOST: LCOE and Effective Net CONE

Energy+Environmental Economics

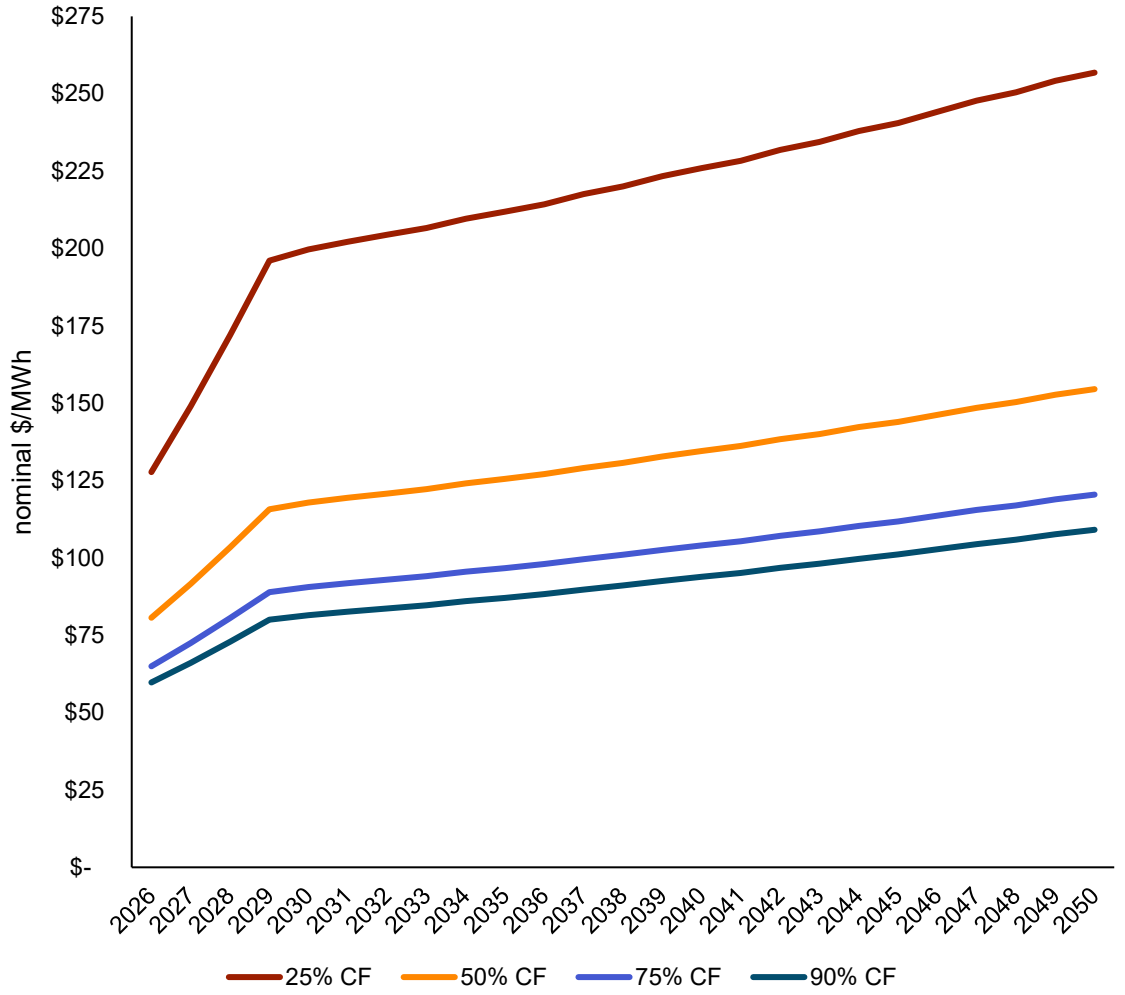
“Effective” LCOE for Gas Plants at Different Capacity Factors

RECOST Forecasts: Q1 2026

- **A common error in public cost estimates is the assumption that the Levelized Cost of Energy should reflect the capacity factor at which a plant operates in reality**
  - For planning purposes, this mis-represents the available energy that a plant could provide in a least-cost portfolio that meets reliability standards
  - ***E3 estimates LCOE here for thermal, dispatchable resources using a 90% capacity factor as a proxy for levelized cost of available energy***
- **While actual production is a critical metric for estimating and forecasting project cash flows, this distinction between available and actual production should be clear in the minds of all stakeholders**
- **At right is a comparison of gas plant LCOE using different potential capacity factors that a plant may realize in its actual operations, relative to a proxy availability factor of 90%**
- **Additional details regarding E3’s LCOE forecast of CT Frame gas power plants under different capacity factors are available in the full RECOST report for Q1 2026, available at https://shop.ethree.com/**

RECOST LCOE Estimates for Gas CCGT

Q1 2026, Mid Cost Trajectory, Generic U.S. Location, by COD year



Capacity Value Concepts: Gross and Net Cost of New Entry (CONE)

+ **RECOST forecasts the fundamental economic costs of a given resource, anywhere in North America**
  - In the context of calculating capacity value, the Levelized Fixed Cost (LFC) estimates shown in this report are the gross Cost of New Entry (CONE) on an installed capacity (ICAP) basis, representing the annualized fixed revenue requirement that a merchant developer would need to recover in order to justify investment in a new generating resource; **this may not reflect the contribution of the resource to the reliability of a given system**
+ **The capacity value of a resource (e.g., Resource Adequacy in California) may be different for every system**
  - As one example ELCC reflects the capacity mix of the system to which the new resource is added as well as the load characteristics of the system, both of which will vary from market to market; ELCC is also a function of the administrative rules governing the resource adequacy accreditation framework in each jurisdiction
+ **For the purpose of estimating the capacity cost of an asset, the metric of net effective CONE is commonly used and E3 supports many clients with these calculations**
  - Effective capacity reflects the portion of a resource's installed capacity that is expected to be reliably available to meet system needs during periods of highest risk as captured by the ELCC
  - As a result, CONE values on an effective capacity basis more directly align with resource adequacy requirements and potential capacity market procurement targets, where a formal capacity market exists

For an energy storage resource where:

Levelized Fixed Cost (RECOST Output) = $150/kW-yr
Levelized Energy Revenues (Energy Arbitrage Revenue) = $60/kW-yr
Resource- and Market-Specific ELCC = 80%

Effective Net CONE = ($150/kWyr – $60/kWyr) / 80% = **112.50 $/kW-yr**

Note: Calculation above is simplified and excludes adjustments for additional terms.

Resource Comparison: Effective Net Cost Of New Entry Details

Illustrative Calculations Using E3 RECOST Forecasts: Q1 2026

The effective net CONE is calculated as the gross cost of new entry, represented here as the Levelized Fixed Cost (LFC) from E3's RECOST forecasts, reduced by levelized energy revenues, and divided by the levelized ELCC for a comparable capacity metric; each of these variables can change materially over time

Input		Solar – ITC	Onshore Wind	Gas CT – Frame	Gas CCGT	BESS (4-hr)	BESS (8-hr)
Gross Cost of New Entry (CONE) (nom. $/kW-yr)	**2026**	$143/kW-yr	$132/kW-yr	$142/kW-yr	$206/kW-yr	$223/kW-yr	$387/kW-yr
	2050	$121/kW-yr	$209/kW-yr	$329/kW-yr	$448/kW-yr	$314/kW-yr	$540/kW-yr
Levelized Energy Revenues (nom. $/kW-yr)	**2026**	$35/kW-yr	$50/kW-yr	$20/kW-yr	$105/kW-yr	$88/kW-yr	$109/kW-yr
	2050	$27/kW-yr	$39/kW-yr	$20/kW-yr	$105/kW-yr	$111/kW-yr	$156/kW-yr
ELCC* (%)	**2026**	10%	15%	90%	90%	75%	85%
	2050	6%	9%	90%	90%	36%	52%
Effective Net CONE (nom. $/kW-yr)	**2026**	$1,080/kW-yr	$547/kW-yr	$136/kW-yr	$112/kW-yr	$181/kW-yr	$327/kW-yr
	2050	$1,515/kW-yr	$1,834/kW-yr	$344/kW-yr	$381/kW-yr	$563/kW-yr	$733/kW-yr
Explanation		Renewable penetration can lead to the degradation of both energy revenues, due to market saturation, and ELCC, as the marginal contribution of the new resource to reliability relies upon the same irradiance and wind patterns.		Thermal energy revenues and ELCC may not change materially in a given market, but costs could change materially (see E3's RECOST forecast) to drive net CONE upward.		The net CONE of BESS reflects the combination of fundamental economic cost declines, tax credits, import tariffs, ELCC degradation as more batteries are added to a system, and the value of renewable generation for charging. These can all change materially over a long-term forecast.	

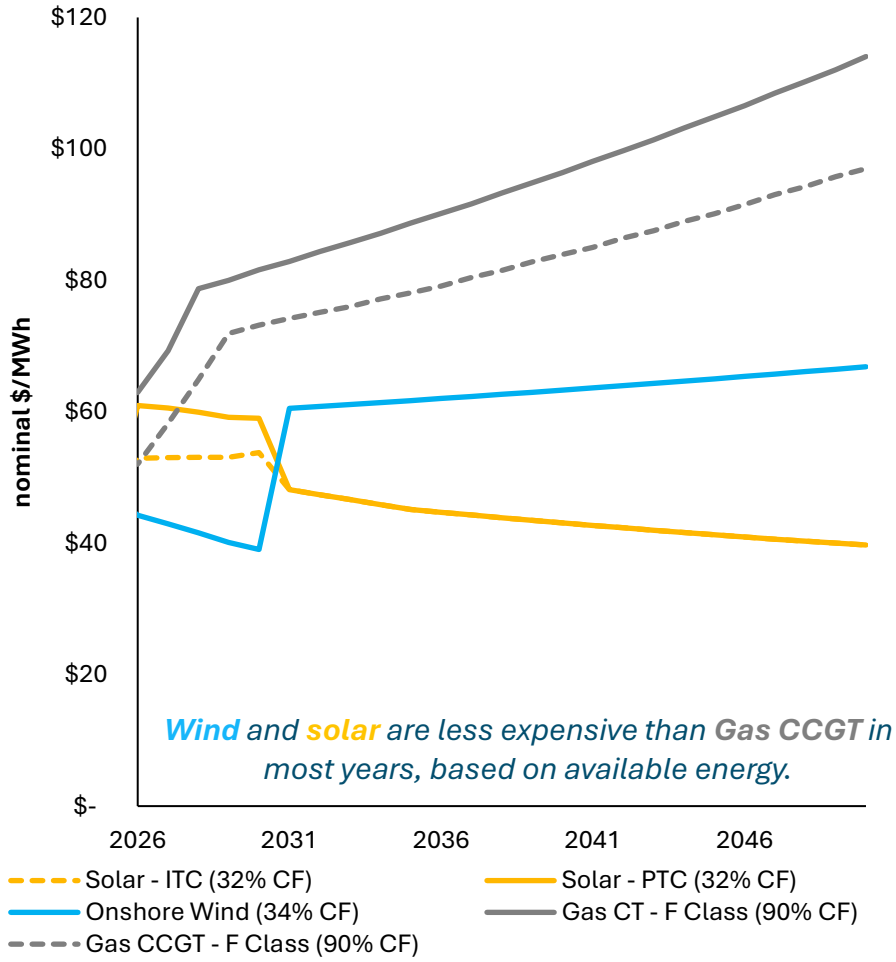
** An illustrative ELCC value is used here. Net CONE calculations should use a levelized ELCC value.*

LCOE for Available Energy and Effective Net Cost of New Entry (Net CONE)

RECOST Forecasts: Q1 2026

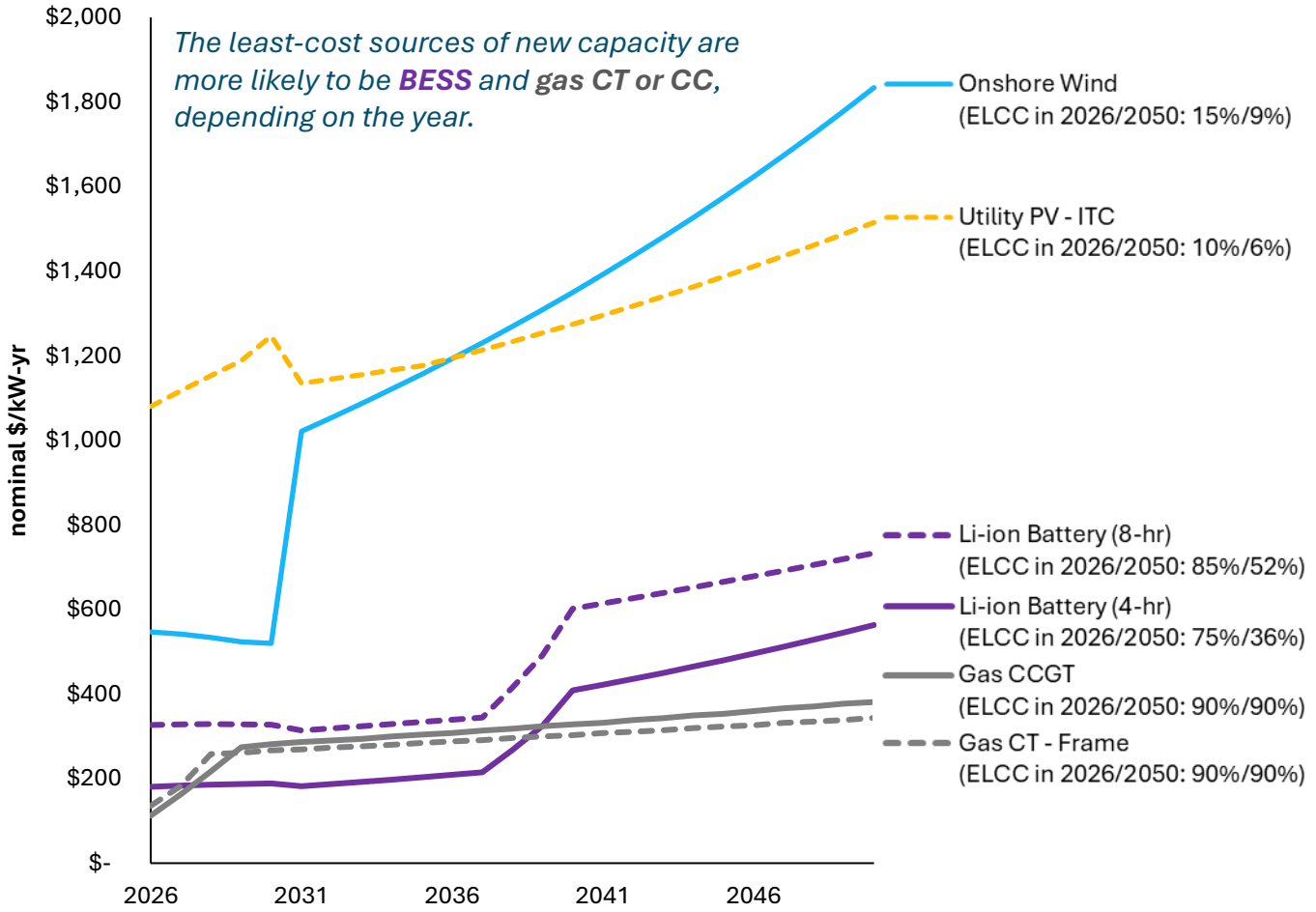
E3 LCOE Forecast

Nominal $/MWh of Available* Energy, Mid Cost Forecast



E3 Effective Net CONE Forecast

Nominal $/kW-yr of Effective Capacity, Mid Cost Forecast



* Available energy denotes the technical potential output of a project, without adjusting for congestion or curtailment (physical or economic). LCOC excludes energy revenues.

Glossary

- **AD/CVD:** antidumping / countervailing duties; AD/CVD tariffs are import duties imposed to offset unfair trade practices, where AD duties counter goods sold below fair market value and CVD duties counter foreign government subsidies. This is currently applicable to solar only.
- **ATB:** Annual Technology Baseline; the NREL database provides technology cost and performance data for energy analysis. In RECOST Q1 2026, the CapEx breakdown is from 2024 NREL
- **BESS:** Battery Energy Storage System
- **BTM:** Behind the Meter
- **BOS:** Balance of System; all components in a PV system needed to make a solar setup work, except the solar panels themselves
- **CF:** Capacity Factor; the ratio of a power plant's actual energy output over a period to its maximum possible
- **COD:** Commercial Operations Date
- **CCS:** Carbon Capture and Storage; a technology to capture CO2
- **CT:** Combustion Turbines, also known as gas turbine, typically categorize as Frame and Aero
- **CCGT:** Combined Cycle Gas Turbines; a more efficient system than CT, typically classified as F and H Class
- **DOI/BLM:** Department of the Interior / Bureau of Land Management
- **EO:** Executive Order
- **EPA:** Environmental Protection Agency
- **ELCC:** Effective Load Carrying Capability; a grid reliability metric for renewables/storage
- **ERP:** Equity Risk Premium; extra return investors expect for holding risky stocks over a risk-free asset
- **FEOC:** Foreign Entity of Concern; a U.S. government designation for foreign entities, primarily tied to countries, such as China, that pose risks to supply chains, especially in clean energy (like batteries/EVs), due to national security concerns, involving ownership by or control from certain foreign governments or entities involved in prohibited activities
- **ITC:** Investment Tax Credits; federal tax incentive that provides a dollar-for-dollar reduction in income taxes for a percentage of the cost of investing in qualified clean energy properties
- **IEEPA:** International Emergency Economic Powers Act; additional duties imposed on imports from various countries, citing national emergencies related to economic concerns, trade reciprocity, or specific issues like the illicit trafficking of fentanyl.
- **IPP:** Independent Power Producer
- **IOU:** Investor-Owned Utilities
- **IRA:** Inflation Reduction Act;
- **LFC:** Levelized Fixed Costs; annualized capital costs and fixed operations & maintenance (O&M) spread over an energy project's lifetime and energy output
- **LCOE:** Levelized Cost of Electricity; metric showing the average cost to build and operate a power plant over its lifetime
- **LCOS:** Levelized Cost of Storage; showing the average cost a storage system delivers over its entire lifespan
- **LDES:** Long-Duration Energy Storage
- **LPO:** Loan Programs Office; operates as the Office of Energy Dominance Financing and performs the duties assigned to LPO through the Energy Policy Act of 2005
- **MACRS:** Modified Accelerated Cost Recovery System
- **NREL:** Nation Lab of the Rockies, formerly known as National Renewable Energy Lab
- **NPV/PV**: Net Present Value / Present Value
- **PSH:** Pumped storage hydro
- **PTC:** Production Tax Credits
- **PPA:** Power Purchase Agreement
- **POU:** Public-Owned Utility
- **RICE:** Reciprocating Internal Combustion Engines
- **WACC:** Weighted Average Cost of Capital

Appendix

For the full Appendix containing details on E3's financing, FEOC, and commodity cost assumptions, please contact E3 at marketprices@ethree.com

Energy+Environmental Economics

Thank You

marketprices@ethree.com

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