Welcome!

2025 Energy Innovation Hackathon

Avangrid A member of the Iberdrola Group

About Us

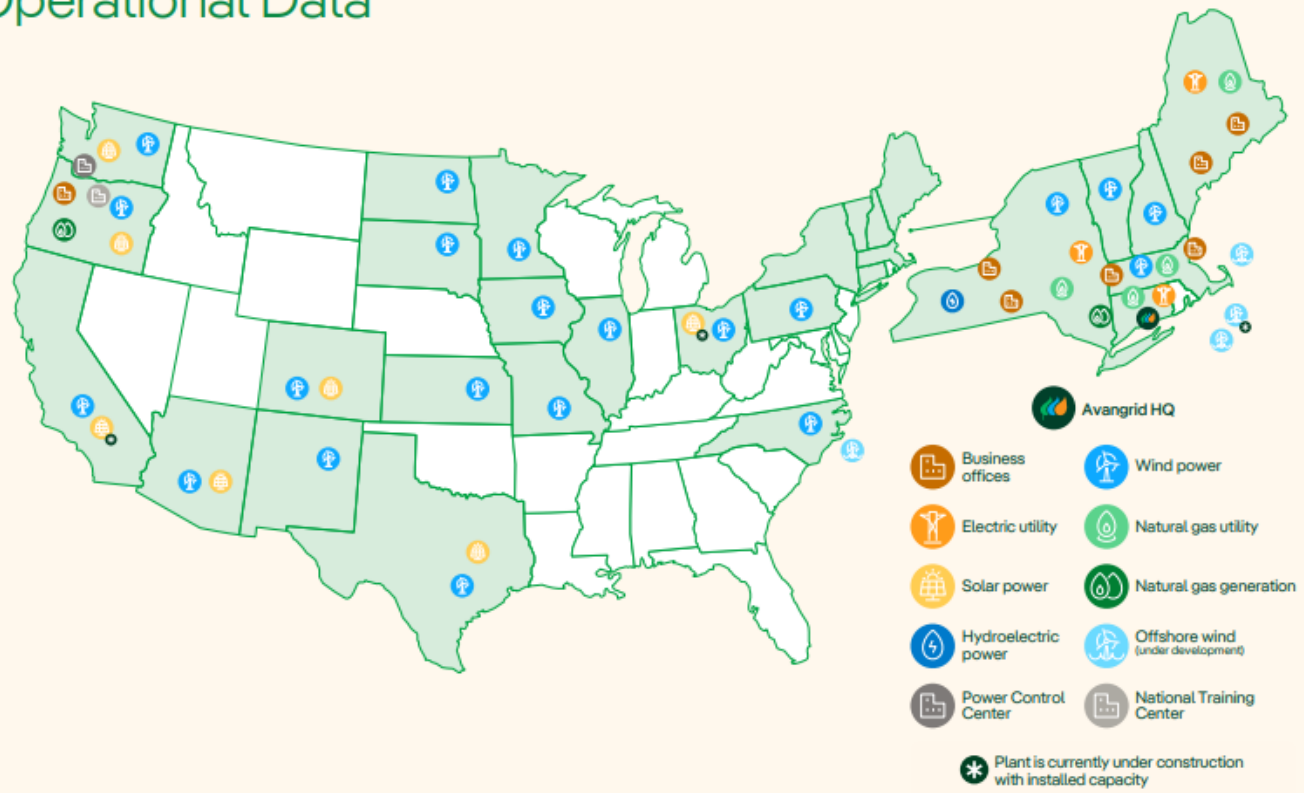
Selected 2024 Operational Data

37,642 GWh
electricity delivered

210M DTh
natural gas delivered

10.5 GW
installed capacity

24,785 GWh
net electric generation



92% emissions-free capacity

Operations in **23** U.S. states

$48B in assets

27.5 GW power projects pipeline

$3B invested in networks capital projects

8 electric and natural gas utilities in CT, MA, ME and NY

8,269 employees


Our Camino Solar project in Kern County, California.

About You

Yale

MIT

Clarkson University

University of Southern Maine

UT Dallas — The University of Texas at Dallas

Harvard University

Northeastern University

Texas — The University of Texas at Austin

Berkeley — University of California

Johns Hopkins University

Clemson University

Binghamton University — State University of New York

UMass Lowell

University of Rochester

Cornell University

Stanford University

1st Place: $5,000

2nd Place: $2,500

3rd Place: $1,000

Judges

Alex Gros
Senior Director, Organic Growth
- Strategy & Planning

Lander Arrue
Director, Market Fundamentals
- Energy Market Pricing
- REC Management

Jeff Pritchard
Senior Renewables Originator
- Customer relationships
- PPA Negotiation

Katie Laessing
Vice President, Investment Office

Steve Swain
Principal Analyst, Market Fundamentals

Lauren Magin
Innovation Manager

Enrique Bosch
Director, Corporate Innovation

Horacio Moros
Innovation Manager

Emily Borne
Program Manager, Innovation & External Funding

Maureen Biddle
Senior Director, Talent Development

What's in Store?

Thursday (10/23)	Friday (10/24)	Monday (11/03)	Tuesday (11/04)
9am ET – Kickoff & prompt sent	10am-3pm ET – Office Hours	5 Finalist Teams will be Notified	3-5pm ET – Finalist Presentations
11am-5pm ET – Office Hours	5pm ET – Final Submissions Due		

We are here to help…

Thursday	SME
11am-12pm ET	Alex
12-1pm ET	Steve
1-2pm ET	Katie
2-3pm ET	Break
3-4pm ET	Jeff
4-5pm ET	Lander

Friday	SME
10-11am ET	Steve
11am-12pm ET	Lander
12-1pm ET	Jeff
1-2pm ET	Alex
2-3pm ET	Katie

Prompt

As renewable assets reach the end of their Power Purchase Agreements (PPAs), they transition into merchant market exposure where revenues are subject to volatile wholesale prices, congestion, and curtailment risk. Valuing the future output of these assets requires integrating historical performance and market price dynamics, a forward (or forecast) view of prices, and an analysis of the risk/volatility inherent to these elements to best determine a fair price for the asset's future output. Your challenge is to design a transparent, data-driven valuation framework for merchant renewable energy pricing that can inform real-world hedging and risk management decisions.

Task: You are part of a renewable developer portfolio team evaluating three merchant assets (two wind, one solar) in three different US markets where the PPAs have expired. Using the data provided (real-world data that has been anonymized), develop a methodology and model to determine the company's willingness to trade merchant risk for a fixed-price offtake structure, and use this model to calculate the risk-adjusted price at which the company would be willing to recontract these assets for a 5-year period.

Considerations

- How do you handle volume and price risk?
- How do negative price events impact your analysis?
- How would your answers be impacted if the PPA customer will not take generation when prices are negative?
- Are some markets more amenable to hedging than others? Is there a market where staying merchant might be preferable to locking in a price for 5 years?
- Are there any other data that would have been useful?

Deliverables:

1. Valuation model (source code or Xcel file)
2. Slide deck with demo of model and overview of methodology, assumptions, tool functionality

Data

2 Wind Farms + 1 Solar Farm – hourly generation + pricing for 3 years (real-time and day-ahead):

1. Valentino – ERCOT

2. Mantero – MISO

3. Howling Gale – CAISO

- **Three years of historical hourly wind and solar generation data from three assets (2 wind and 1 solar) in 3 different markets - ERCOT, MISO, CAISO**
- **Corresponding historical hourly prices ($/MWh), RT and DA, at the assets' busbars and reference hubs**
- **Monthly forward price curves, peak and off-peak periods, for the reference hub of each asset. Note that these forward curves represent the price for a fixed/flat 25 MW block of power.**

Data

Peak (P) hours = Mon-Fri, HE 7-22 excl NERC holidays
NERC holidays: New Year's Day, Memorial Day, Labor Day, Thanksgiving, and Christmas
DST is observed

Historical Data

Date	HE	P/OP	Gen	RT Busbar	RT Hub	DA Busbar	DA Hub
1-Jan-22	1	OP	36.8	$0.74	$56.43	$5.20	$30.17
1-Jan-22	2	OP	17.0	($3.78)	$29.24	$1.54	$22.08
1-Jan-22	3	OP	14.6	($4.00)	$22.15	$1.83	$19.97
1-Jan-22	4	OP	14.6	($4.00)	$19.59	$2.50	$15.90
1-Jan-22	5	OP	14.4	($4.00)	$13.66	($1.34)	$10.00
1-Jan-22	6	OP	14.0	($4.06)	$11.57	$0.08	$12.93
1-Jan-22	7	OP	13.7	($4.06)	$10.25	$0.86	$13.76
1-Jan-22	8	OP	14.5	($4.00)	$10.38	$5.87	$14.88
1-Jan-22	9	OP	12.2	($5.35)	$8.94	$8.84	$15.74
1-Jan-22	10	OP	-	($14.81)	($0.04)	$12.33	$16.83
1-Jan-22	11	OP	1.6	($5.08)	$19.05	$19.48	$19.87
1-Jan-22	12	OP	15.4	$9.26	$21.26	$24.99	$24.03
1-Jan-22	13	OP	7.7	$25.97	$26.23	$27.98	$26.02
1-Jan-22	14	OP	2.9	$27.60	$27.67	$30.75	$27.94
1-Jan-22	15	OP	1.8	$28.34	$28.08	$35.64	$29.42
1-Jan-22	16	OP	7.0	$55.75	$31.25	$34.51	$28.08
1-Jan-22	17	OP	5.4	$51.90	$29.70	$38.27	$32.78
1-Jan-22	18	OP	5.2	$42.63	$28.21	$47.07	$43.72
1-Jan-22	19	OP	9.1	$25.30	$24.43	$29.09	$28.79

Forward Prices

	Peak	Off Peak
Jan-26	$66.41	$61.71
Feb-26	$66.38	$59.84
Mar-26	$47.90	$37.77
Apr-26	$47.59	$36.67
May-26	$49.00	$37.22
Jun-26	$52.13	$39.89
Jul-26	$79.10	$50.15
Aug-26	$112.37	$66.49
Sep-26	$60.22	$42.00
Oct-26	$44.56	$36.83
Nov-26	$45.37	$36.62
Dec-26	$51.64	$41.75
Jan-27	$83.90	$71.66
Feb-27	$79.46	$67.44
Mar-27	$46.26	$35.80
Apr-27	$44.53	$32.47
May-27	$45.63	$38.31
Jun-27	$51.39	$44.21
Jul-27	$77.52	$58.43

ERCOT | MISO | CAISO

Final Submission Guidelines

- ✓Model (excel, code, etc.)
- ✓Slide deck
  - ✓Valuation of each asset
  - ✓Your methodology / how you reached this conclusion
  - ✓Demo of how the model works
  - ✓Communicated in a clear and concise manner

Checklist:

- ✓Calendar invites for office hours
- ✓Sharepoint access
- ✓Ask questions: office hours, email
- ✓Prompt + data set: sent via email
- ✓Final submission: in your folder by 5pm ET tomorrow
- ✓Teams will be notified if moving forward by 5pm ET 11/3
- ✓Hold the date for finalist presentations: 11/4, 3-5pm ET

innovation@avangrid.com

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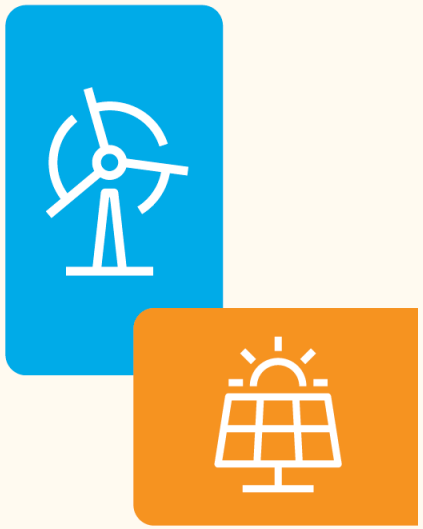

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