Heard in Public Utilities, Energy, and Technology Interim Committee on 8/20/25

Role of Renewables and Storage In Utah

Presentation to PUET Interim Committee

August 20, 2025

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Interwest Energy Alliance

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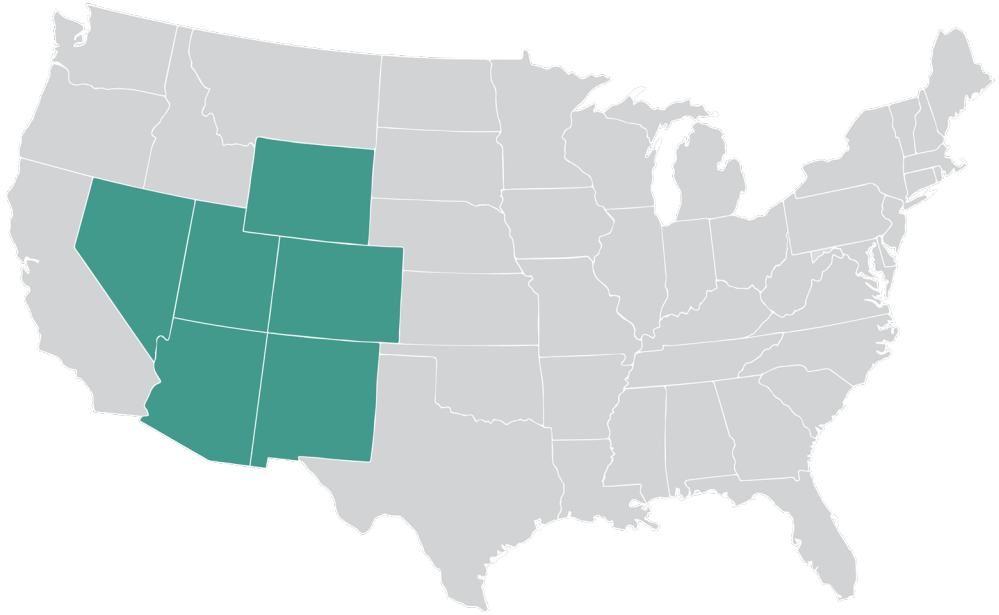
Interwest Energy Alliance

Interwest is a regional 501(c)(6) trade association representing nation's leading developers and manufacturers of wind, solar, transmission, and storage technologies.



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Role of Renewables and Storage in Utah:

- Renewable energy and storage are complementary to other generation types
- Renewable energy and storage can help meet growing energy demand
- Renewable energy and storage benefit local communities

Q: "What is the role of the legislature in deciding [the role of renewables]?"

A: Utah is open for business

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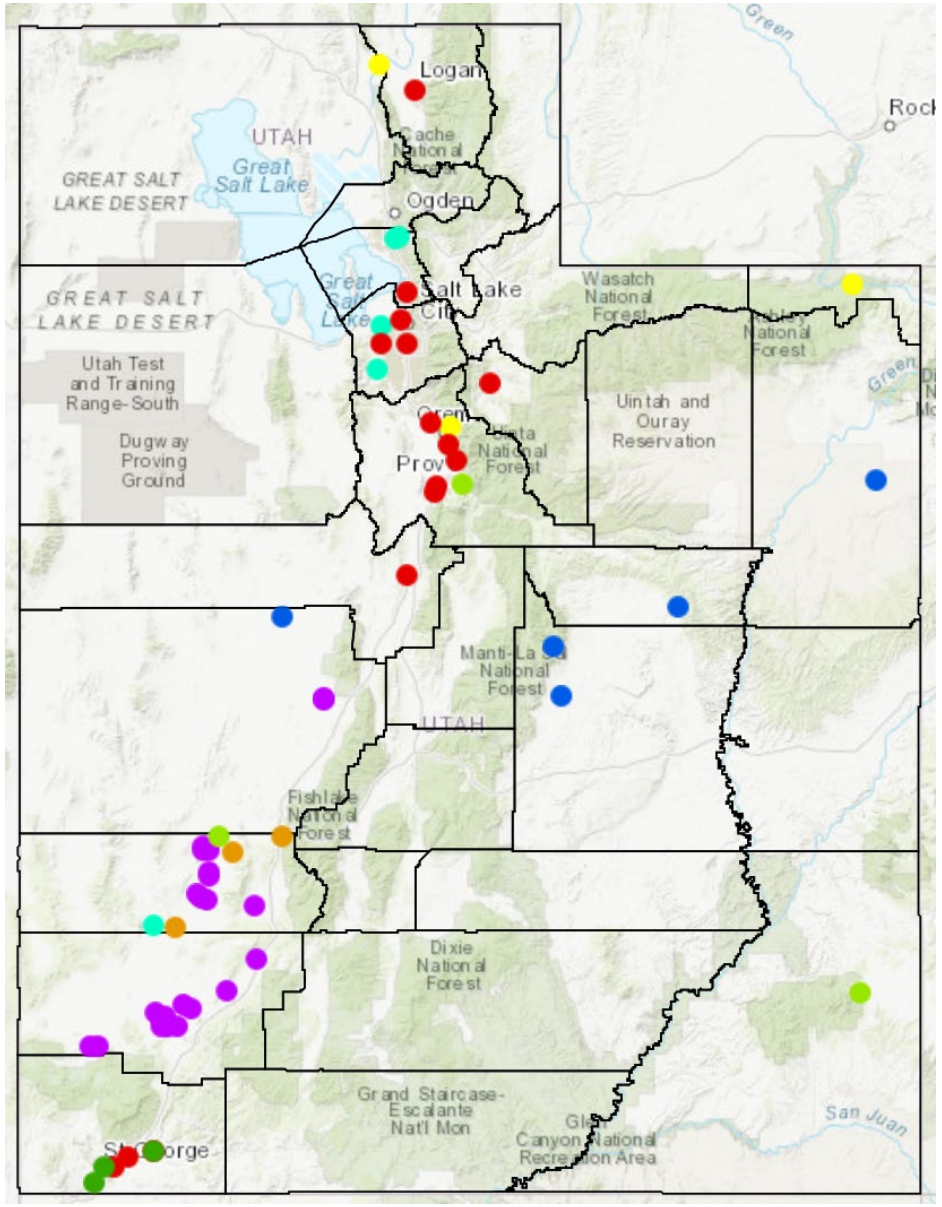
Existing Solar, Wind, and Geothermal Facilities

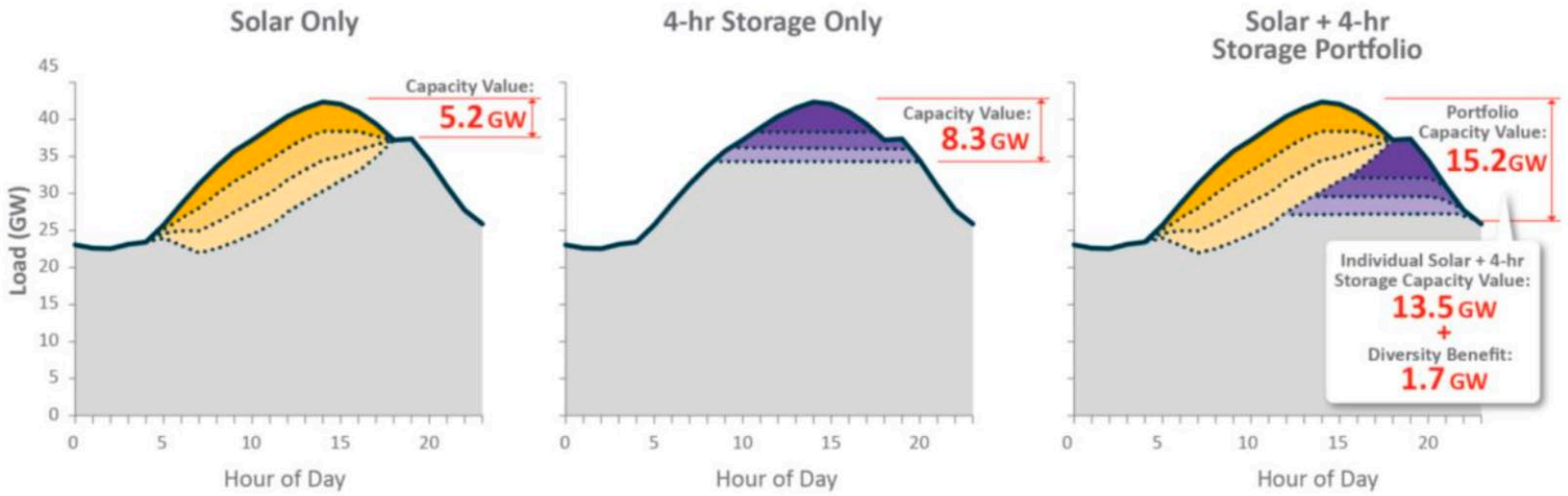
County	Facilities (above 10 MW)	Installed Solar, Wind, and Geothermal Capacity (MW)
Beaver	8	626.3
Carbon	1	80
Emery	1	100
Iron	8	630.4
Juab	1	80
Millard	4	120
Rich	1	57.6
San Juan	1	134.1
Sevier	1	80
Uintah	1	12.5
Utah	1	18.9
Beaver/Millard	1	102
Total	29	2041.8



Utah Geological Survey, 2024

Storage and renewables work as a team

- **Energy Storage in UT**
  - Solar and storage are regularly built together; solar facilities can be retrofit to include storage.
  - Developers investing in storage in Utah: rPlus Energies ($1.1b in solar/storage, 400 MW); Clearway Energy Group ($605m, 320 MW).
  - Storage technologies are increasing in scale (200-500+MW) and longer duration (8-24+ hours)
- **Energy Storage unlocks the cost-saving and reliability-improving power of renewables**
  - Energy storage shifts low cost daytime solar to afternoon peak hours
- **Energy Storage and solar contribute more to the grid than either resource would alone:**



"Incremental ELCC Study for Mid-Term Reliability Procurement." Jan 2023. Astrape/E3

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Role of Renewables and Storage in Utah:

- **Renewable energy and storage are complementary to other generation types**
  - **Reliability Benefits from resource diversity**
  - **Cost Benefits from resource diversity**
- Renewable energy and storage can help meet growing energy demand
- Renewable energy and storage benefit local communities

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Renewables are Complementary: Reliability

Renewable energy <u>diversifies</u> any electricity portfolio by adding a different supply source:

- Renewables are not dependent on a fuel supply source
- Renewables do not compete with the foreign export or commodity markets
- In extreme weather events, multiple conventional power plants of the same type could fail:

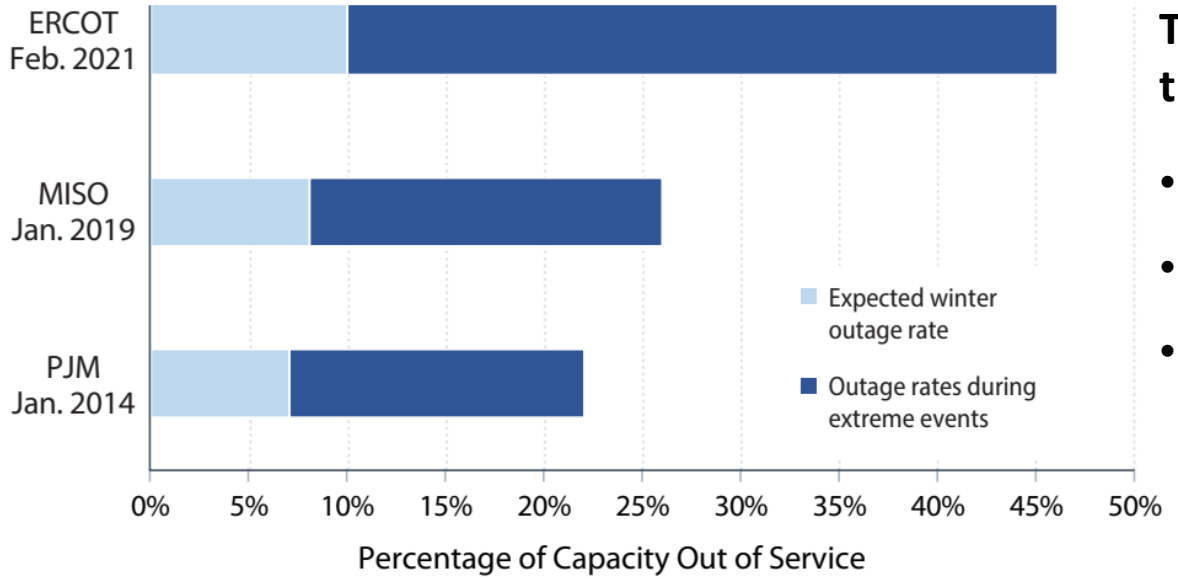


Figure 3. Correlated outages of power plants during extreme weather[21]

Thermal outage rates (light blue normal) are much higher than expected when conditions are extreme (dark blue):

- Gas pipelines may freeze
- Power plant equipment may freeze
- Solar facilities largely continue to generate in these conditions

Source: NREL

Renewables are Complementary: Cost

<u>Diversity</u> also helps reduce and stabilize costs:

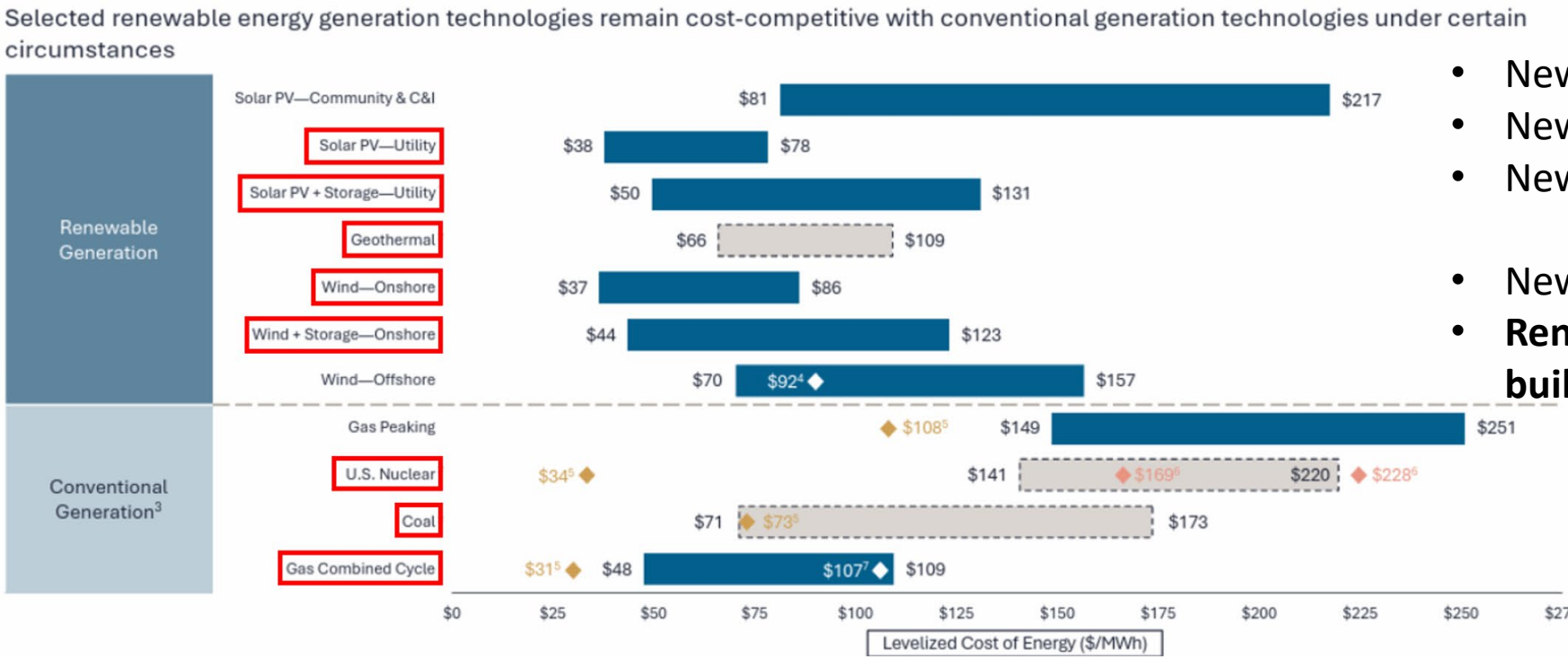
Having renewables in an electricity portfolio:

- **(<u>Even without tax credits</u>), lowers average electricity costs**:
  - New renewables builds are often cheaper than new build thermal resources
  - New renewables builds can be cheaper than the cost of running existing thermal facilities
  - Renewables can offset high costs during periods when fuel is expensive (high summer, deep winter)
  - This is true even without tax credits:
    - Federal credits expiring (HR1) in 2027
    - Utah PTC expiring in 2028 for new projects
- **Stabilizes electricity costs:**
  - Renewables generate at zero fuel cost with minimal ongoing maintenance
  - Price is often set at a fixed per-kWh rate for the life of the project

Renewables are Complementary: Cost

New renewables builds are often cheaper than new build thermal resources

- LCOE (cost for all the energy it will produce over the lifetime of the plant, including capital costs) shows that new renewables are often cheaper than new conventional resources:



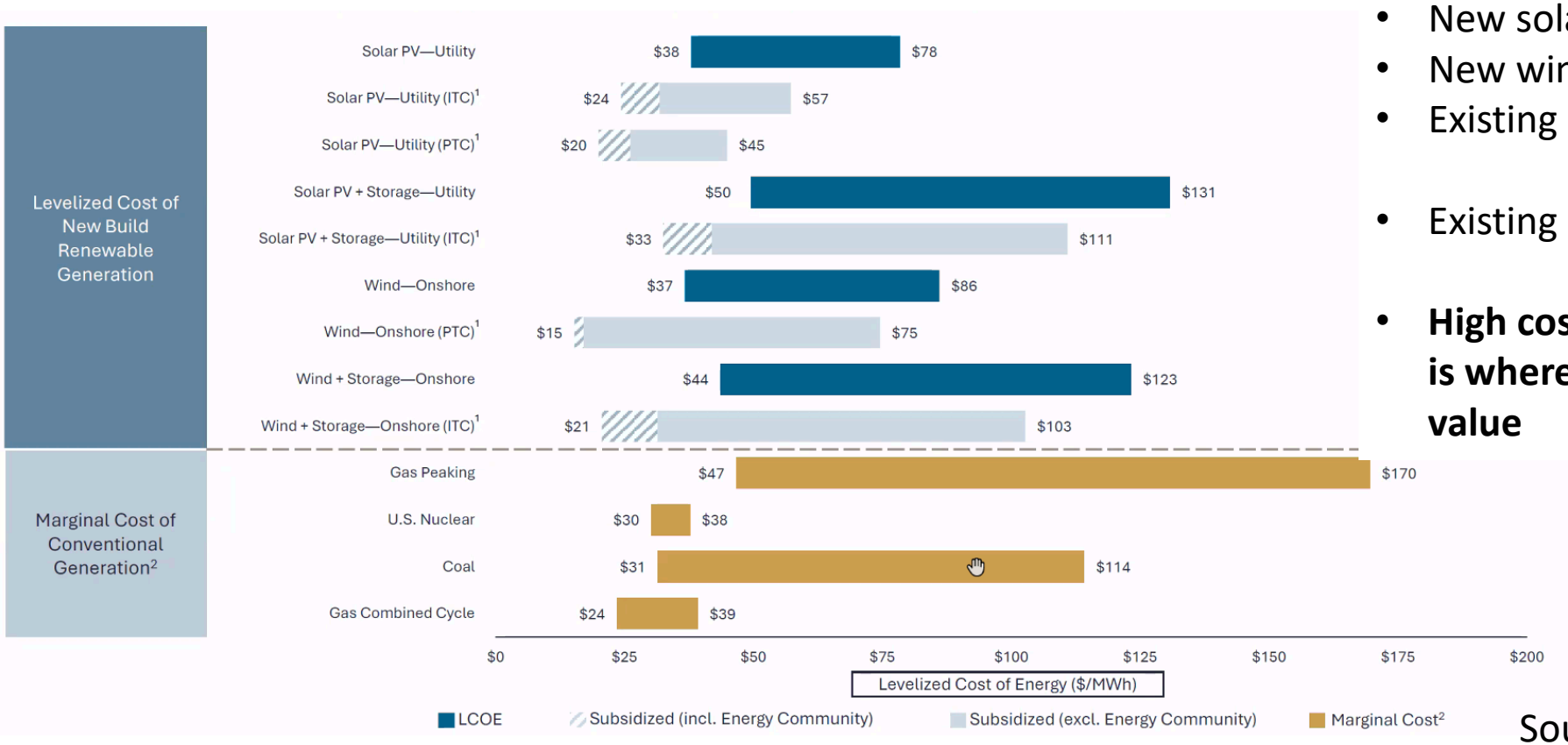
- New solar: **3.8 cents to 7.8 cents** / kWh
- New wind: **3.7 cents to 8.6 cents** /kWh
- New gas peaker: 14.9 cents to 25.1 cents /kWh
- New coal: 7.1 cents to 17.3 cents /kWh
- **Renewables are often the cheapest new build option**

Source: Lazard's LCOE v. 18

Renewables are Complementary: Cost

New renewables can be cheaper than the cost of running <u>existing</u> thermal facilities

- Cost of a new build (BLUE) of renewables versus ONLY the RUNNING/marginal cost of existing generation shows value of renewables:



- New solar: **3.8 cents to 7.8 cents** / kWh
- New wind: **3.7 cents to 8.6 cents** /kWh
- Existing gas peaker: 4.7 cents to 17 cents /kWh
- Existing coal: 3.1 cents to 11.4 cents / kWh
- **High cost side (when fuel is expensive) is where renewables offer tremendous value**

Source: Lazard's LCOE v. 18

Role of Renewables and Storage in Utah:

- Renewable energy and storage are complementary to other generation types
- **Renewable energy and storage can help meet growing energy demand**
  - **Need for resources of all types**
  - **Renewables can get to market quickly**
- Renewable energy and storage benefit local communities

Q: "What is the role of the legislature in deciding [the role of renewables]?"

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Utah, like the rest of the globe, is headed towards an energy deficit due to increased power demand and decreasing supply. While some special interests call for reductions in energy consumption, the reality is we need significantly more power to meet current and future energy needs. Our health, well-being and quality of life depend on it.

UTAH OFFICE OF
ENERGY DEVELOPMENT

Operation Gigawatt: "Four Key Areas"

- Increasing transmission capacity so more power can placed on the grid and moved to where it's needed.
- Expanding and developing more energy production. This includes keeping what we currently have and developing new sustainable sources.
- Enhancing Utah's policies to enable clean, reliable energy like nuclear and geothermal.
- Investing in Utah innovation and research that aligns with our energy policies.

Source: UT Office of Energy Development

Renewable Energy and Storage can help meet growing electricity demand

Table A.1 – Forecasted Annual Load, 2025 through 2034 (Megawatt-hours), at Generation, pre-DSM

Year	Total	OR	WA	CA	UT	WY	ID
2025	64,414,790	16,114,060	4,545,410	844,170	29,396,700	9,662,750	3,851,700
2026	64,231,880	16,396,610	4,573,810	844,790	28,904,240	9,640,700	3,871,730
2027	65,395,390	16,601,790	4,761,850	844,380	29,627,340	9,666,940	3,893,090
2028	66,504,260	16,824,670	4,957,640	845,780	30,272,410	9,684,200	3,919,560
2029	67,262,990	16,995,130	4,967,740	842,310	30,839,670	9,686,200	3,931,940
2030	68,211,820	17,210,630	4,993,880	841,360	31,535,430	9,681,100	3,949,420
2031	69,249,310	17,432,090	5,018,660	840,620	32,295,080	9,696,570	3,966,290
2032	70,277,070	17,697,980	5,055,940	842,410	32,986,240	9,704,760	3,989,740
2033	71,146,810	17,911,130	5,071,770	839,820	33,621,250	9,700,290	4,002,550
2034	72,221,110	18,187,210	5,100,920	839,770	34,378,540	9,691,460	4,023,210
Compound Annual Growth Rate							
2025-34	1.28%	1.35%	1.29%	-0.06%	1.75%	0.03%	0.49%

PacifiCorp 2025 IRP Vol. II

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Supply chain disruptions are affecting all energy development

- **Natural Gas**
  - Longest lead time item = turbine:
    - ordered today will likely have delivery in 5 years (2030) (1)(2)
- **Solar and Wind – fastest time to market**
  - Longest lead time item = step-up transformer:
    - ordered today will likely have delivery in 15-48 months (2026-2029) (1)(3)
- **Nuclear**
  - Small Modular Reactors (SMRs)
    - ID National Lab has said SMRs are 5 years away from deployment (2030) (4)
    - A new 50MW SMR in Tennessee is scheduled for COD in 2030 (5)

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(1) Norton Rose Fulbright - August 2025; (2) Mobius Market Research; (3) Onshore wind supply chains; (4) INL Timeline of Deployment; (5) Google, Kairos Power plan advanced nuclear plant

Role of Renewables and Storage in Utah

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- Renewable energy and storage can help meet growing energy demand
- **Renewable energy and storage benefit local communities**

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Renewable Energy and Storage Can Help Benefit Local Communities

- **$6 billion** capital invested in wind, solar, and energy storage projects in UT
- **$13.8 million** paid in property, state, and local taxes annually
- **21,600** wind, solar, and energy storage jobs in Utah
- **$17.1 million** extra income to farmers, ranchers, private landowners in lease payments annually

ACP UT Factsheet

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Thank you!

Feel free to reach out to our Utah team with questions or comments:

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Extra Slides

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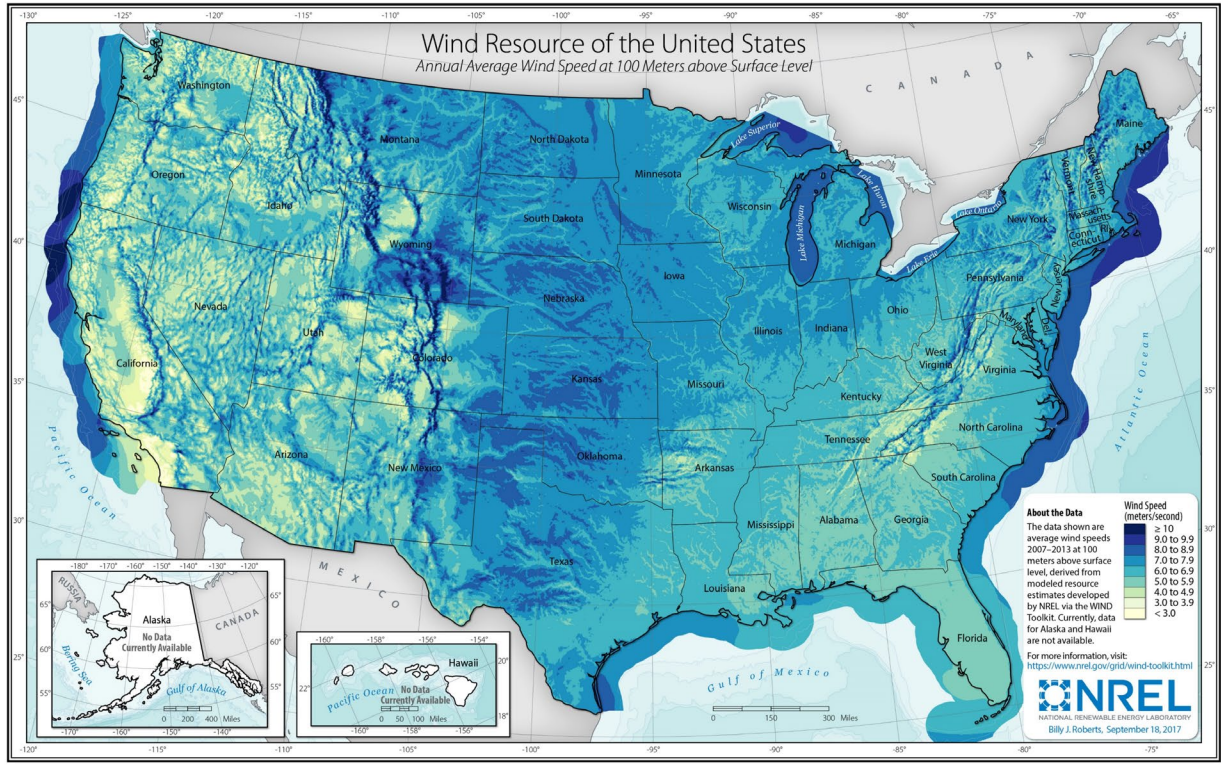
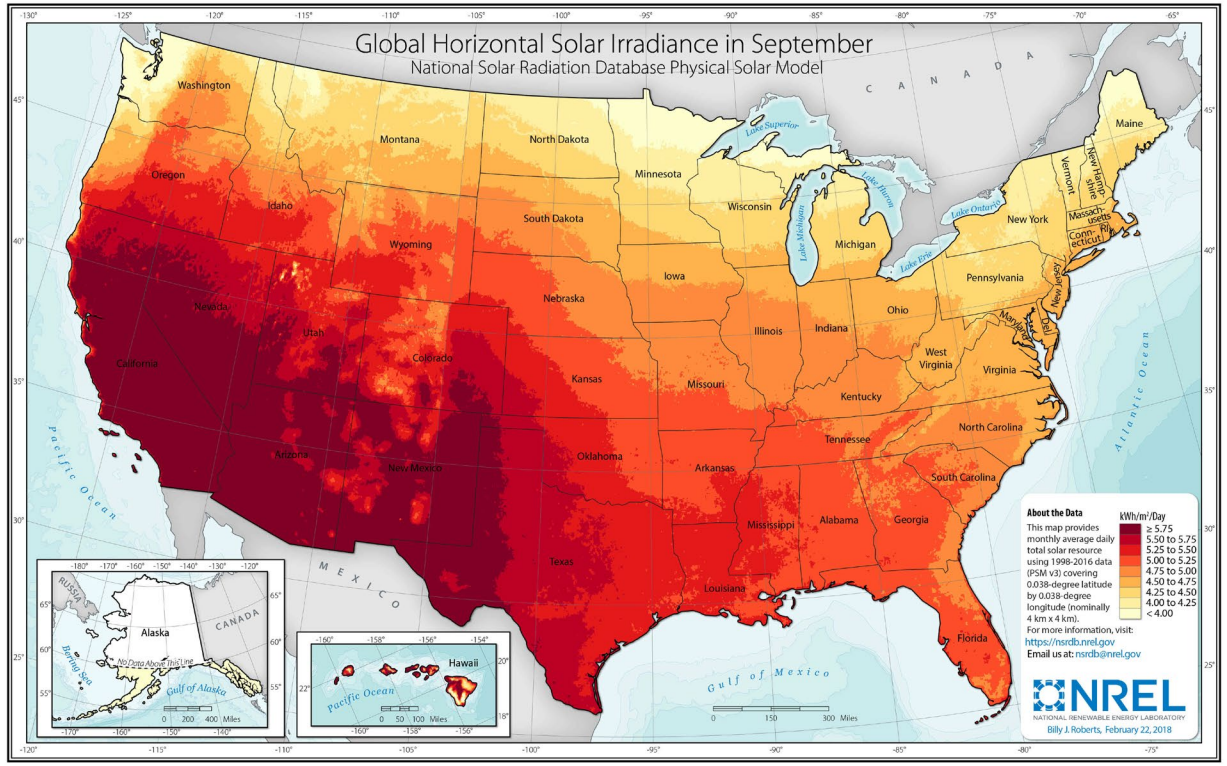
U.S. Wind and Solar Resources

NREL Wind (left, 100m height) and Solar (right) Resource Maps





Utah has an excellent renewable resource

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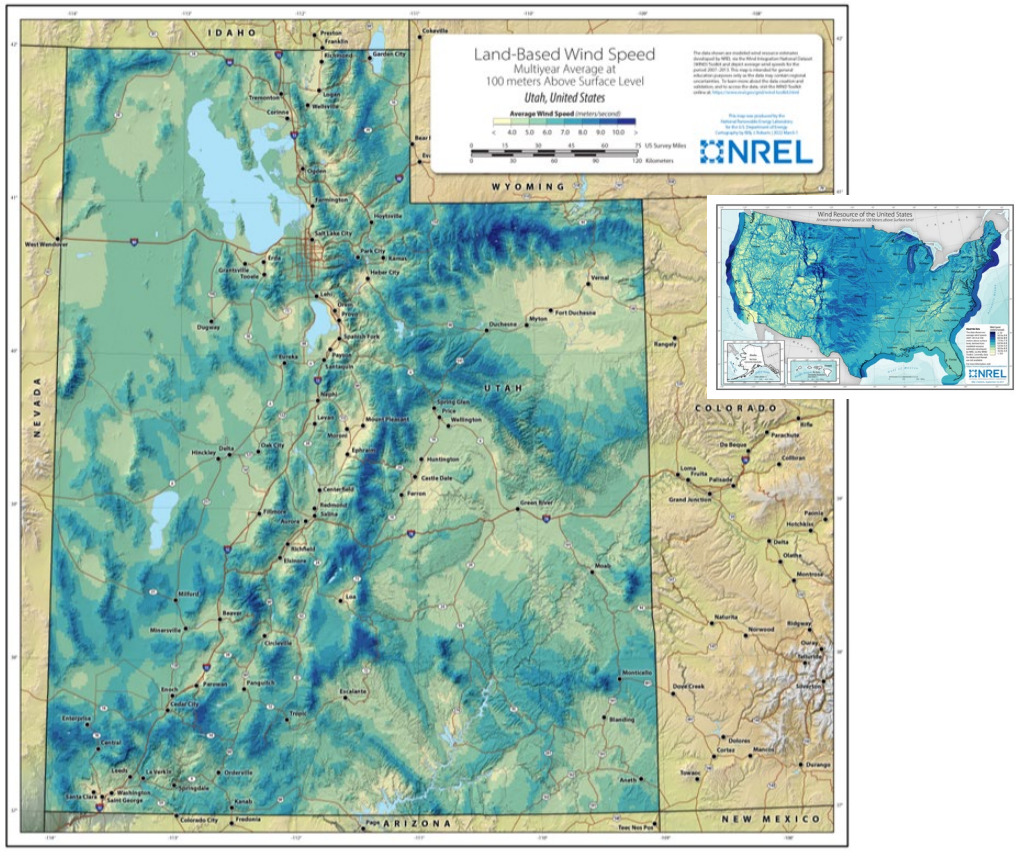
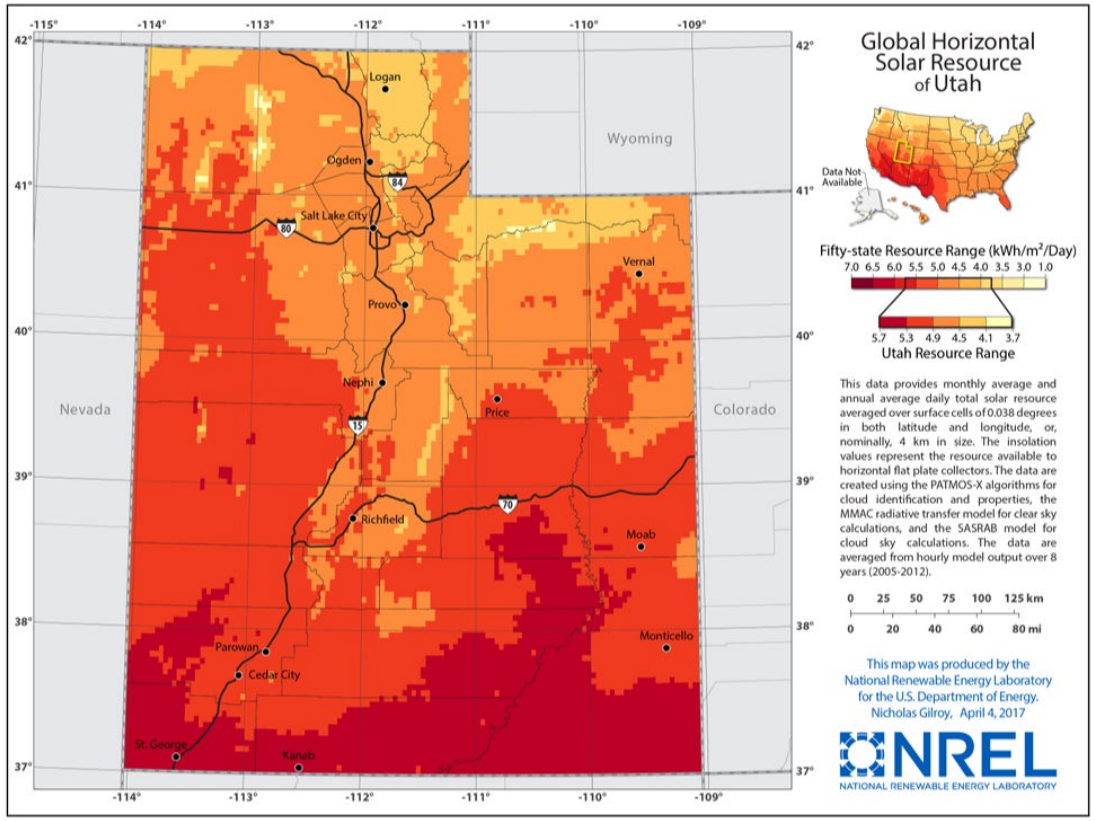
High Resource Potential in Utah



Wind



Solar

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