

Green New Deal Study

Ansergy expanded its offerings by adding 25-year forecasts marketed under our [WECC LT website](#). We currently have three types of clients using the service:

- Utilities - WECC LT supports IRP teams
- Originators - WECC LT's 70 hourly price curves enhance pricing your deals
- Equity - 70 hourly price curves ensure accurate asset pricing

Stress testing wild ideas is another benefit of these long-term forecasts. One very wild idea is the Green New Deal, and we were curious just how those policies might impact the WECC power markets. To address those curiosities, we are pleased to announce our Green New Deal White Paper.

The following report is a synopsis of the full study. Drop us a line if your firm is interested in accessing the entire study. We provide an easy to use interface that will answer all your questions, plus we offer 70 downloadable hourly price curves for the 25-year study.

The Green New Deal

The Democrats stunned the world earlier this year with their rollout of the “Green New Deal.” There was as much confusion around the announcement; the Republicans claimed their proposal banned airplanes, cows, nukes, coal, and gas-fired generation. The uproar over a burger ban while flying was deafening; then the Left clarified that cows and planes would get a pass in Version 1.01. However, the energy sector is still scratching random body parts as they try to figure out what it all means.

Now Ansergy has weighed in. We sought answers to questions which the Left never asked, or even contemplated. Issues such as:

1. Is it possible to swap thermal for renewables and keep the lights on?
2. In what ratio would the swap need to be? 1 to 1; 2 to 1; more?
3. Would demand from all hours of the day be served, given that the sun greedily only shines during daylight hours?
4. How much would this bold proposal cost and who would most likely pay for it?
5. Which WECC power hubs would be most impacted?

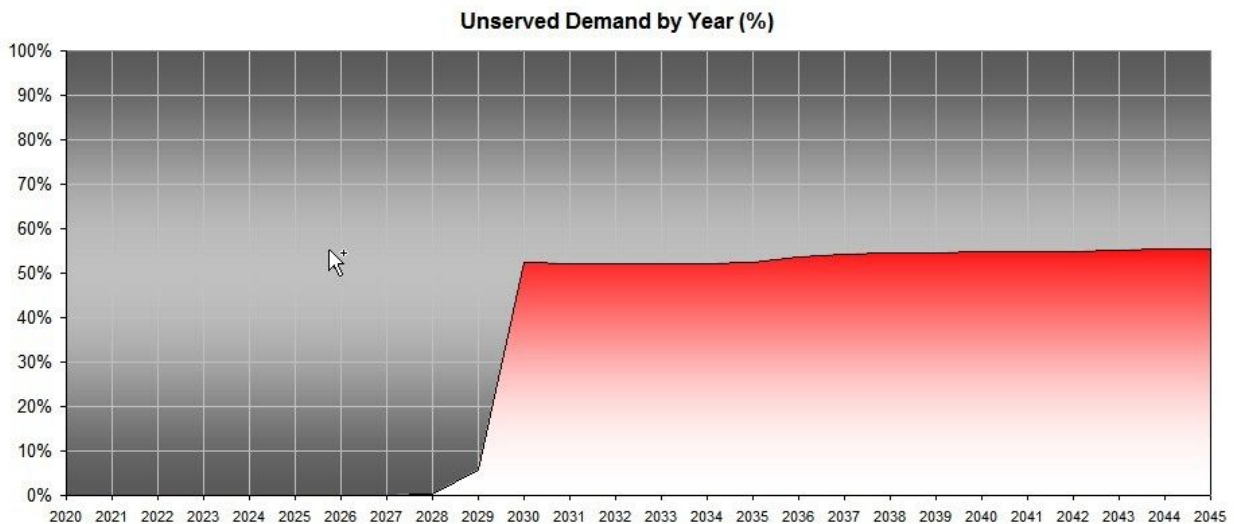
Case One - Nuke the Coal and Gas

Forget the cows and planes; let's focus on the electric generation. The Green New Deal requires replacing carbon-emitting generators with wind and solar. There are no hard guidelines in GND, so we made our own assumptions:

- All gas, oil, and coal are retired by 2030
- An equal amount of renewables (wind and solar) are brought online in the year of retirement
- Nukes continue to generate.

So what happens?

Case One - Unserved Demand by Year

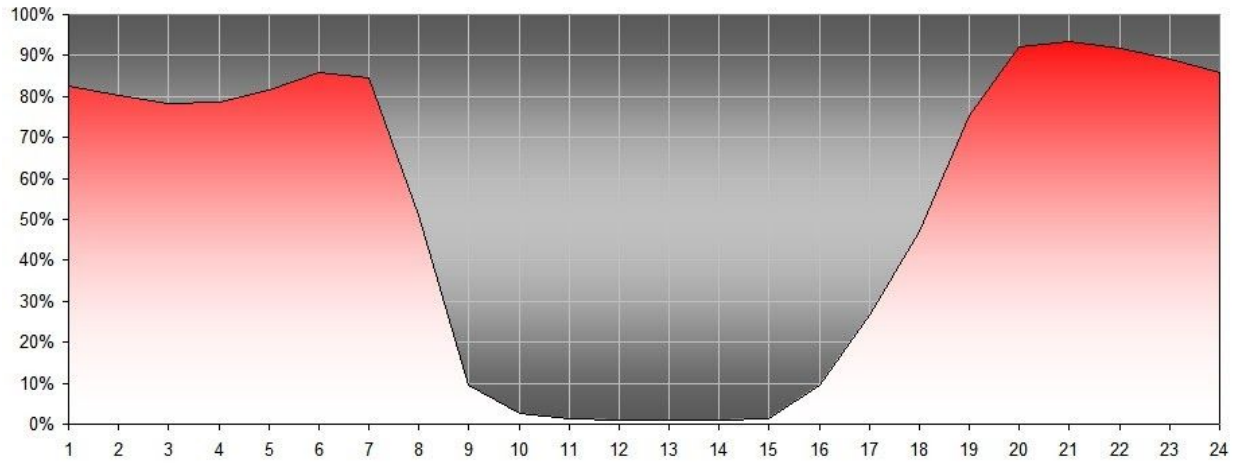


The above is a plot of the percent of unserved demand across the WECC. By 2030, the WECC is beset by rolling blackouts during 50% of all hours.

But not all hours are equal under the Green New Deal.

Case One - Unserved Demand by Hour

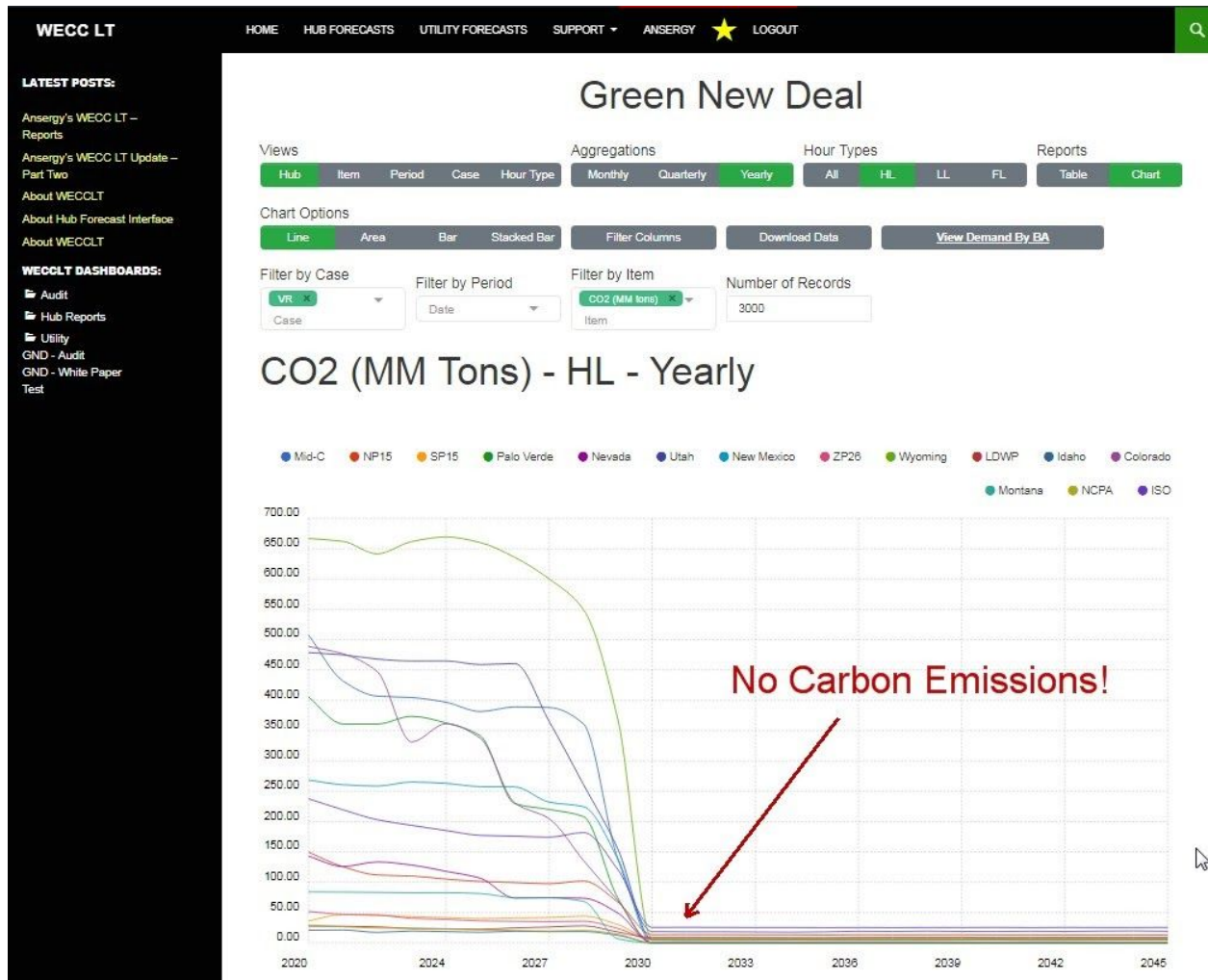
WECC Blackouts by Hour



Blackout gains new meaning. Nearly 90% of the nighttime hours experience unserved demand. In other words, solar seems to work best during daylight hours.

That's the bad news; the good news is that carbon emissions are eliminated.

Case One - CO2 Emissions by Year



We can all breath a clean sigh of relief, except for the rioting in the streets, the near-universal unemployment, and other symptoms of complete anarchy.

Case Two

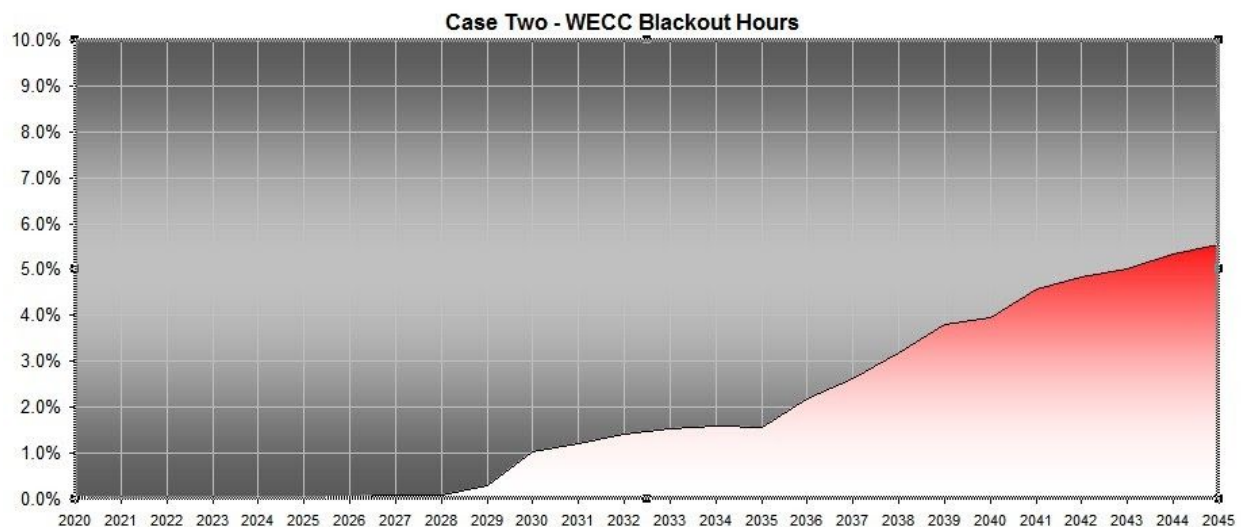
Any attempt to model the Green New Deal requires bold assumptions given there is little detail in the [policy proposal](#). Our first case assumed all coal and gas were retired by 2030 and replaced with an equal amount of wind and solar. Clearly, that doesn't work because the wind doesn't blow every hour nor does the sun always shine. Case Two attempts to find a solution which keeps the lights on.

Key Assumptions

- All coal is retired by 2030
- A more aggressive buildout of residential and commercial solar installs
- Only gas plants built before 1995 and with heat rates higher than 8000 btu/kwh are retired
- Renewables replace retired thermals in a 2:1 ratio

Results

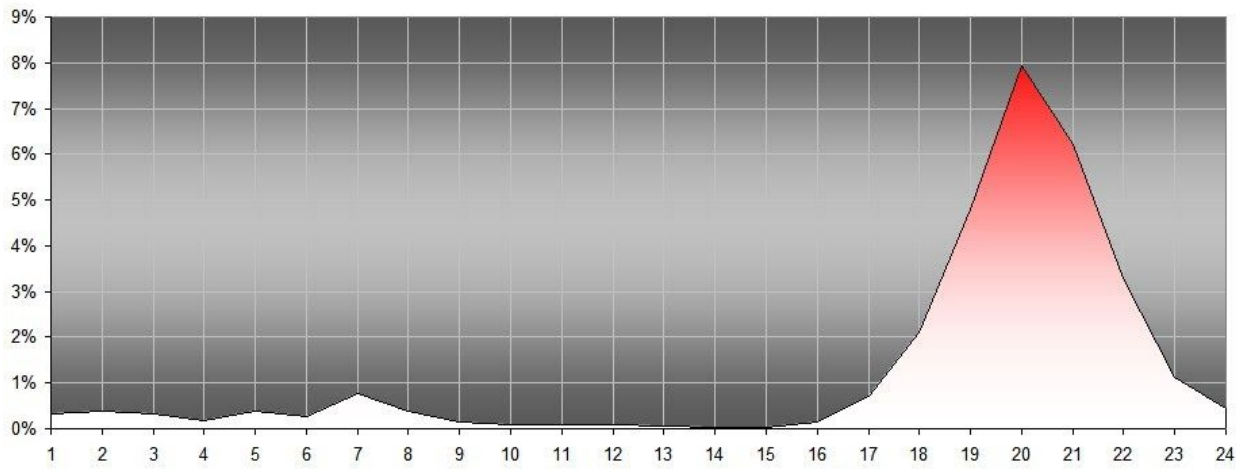
Case Two - Unserved Demand by Year



Significant improvement, only 5% of the WECC realizes unserved demand in 2045. You can hear the collective sigh of relief across the left and howls of “fake news” rage from the right. Green New Deal works! Or does it?

Case Two - Unserved Demand by Hour

WECC Blackouts by Hour



Green New Deal, case 2, works if you can live with 8% of the WECC blacked out at 8:00 pm every evening. Is the air cleaner?

Case Two - Carbon Emissions by Year

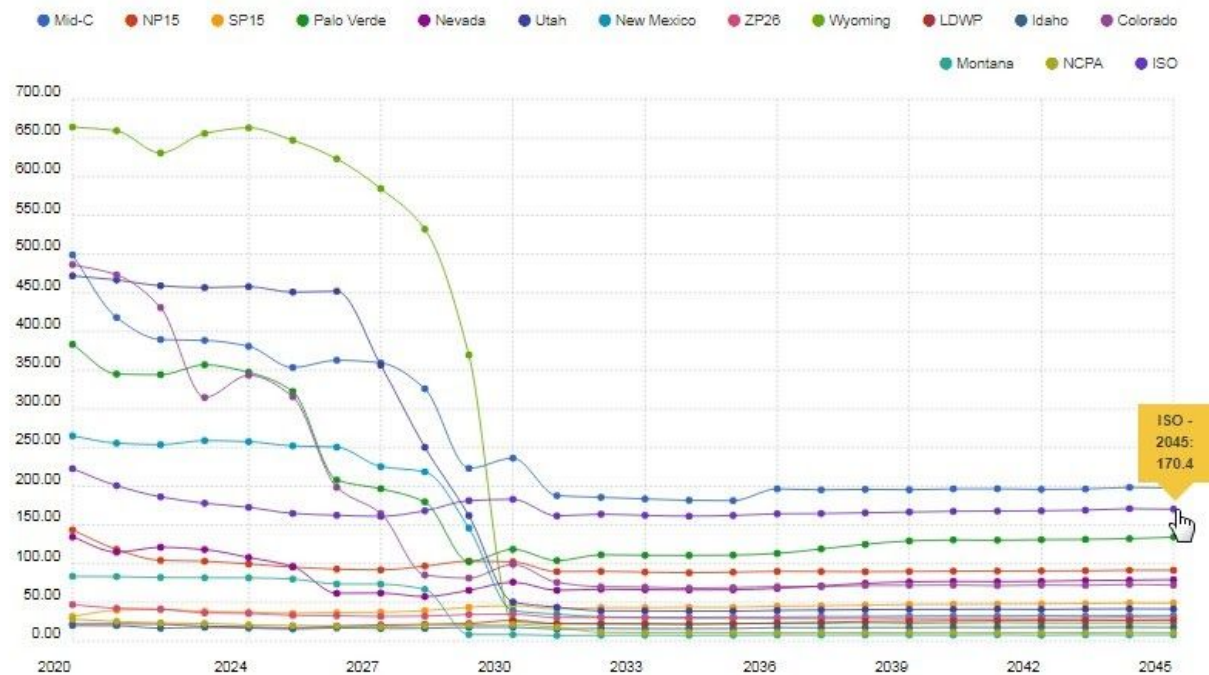
Green New Deal

Views: Hub | Item | Period | Case | Hour Type | Aggregations: Monthly | Quarterly | Yearly | Hour Types: All | HL | LL | FL | Reports: Table | Chart

Chart Options: Line | Area | Bar | Stacked Bar | Filter Columns | Download Data | View Demand By BA

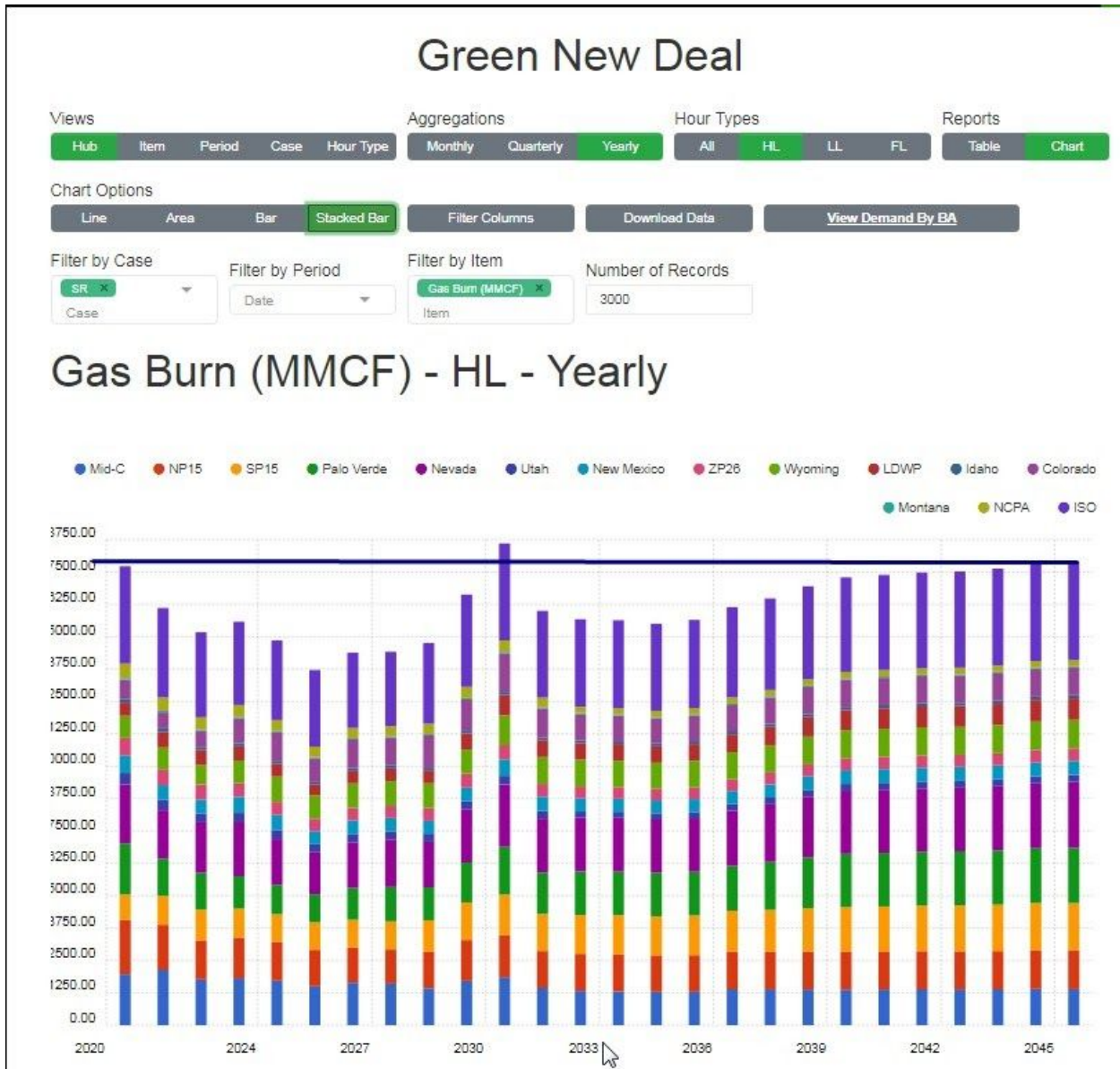
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CO2 (MM Tons) - HL - Yearly



Wyoming's CO2 emissions drop to near zero, that's good, right? But check out the greenest state in the universe, California; its emissions don't change. Why? The state has no coal, and most of its old gas has already been retired. That means the state runs an equal amount of gas since its gen stack is mostly unchanged.

Case Two - Gas Burn by Year



The WECC ends up burning more gas as it struggles, often in vain, to keep the lights on. So Case Two kind of works, the coal is gone, and there aren't many rolling blackout hours. What doesn't work is the elimination of carbon emissions; they fall, but don't approach zero.

All of WECC is impacted uniquely, but the brunt of the burden is felt in California.

Case Two - Unserved Demand by Year and Hub

Green New Deal

Views: Hub | Item | Period | Case | Hour Type

Aggregations: Monthly | Quarterly | Yearly

Hour Types: All | HL | LL | FL

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Chart Options: Line | Area | Bar | Stacked Bar | Filter Columns | Download Data | View Demand By BA

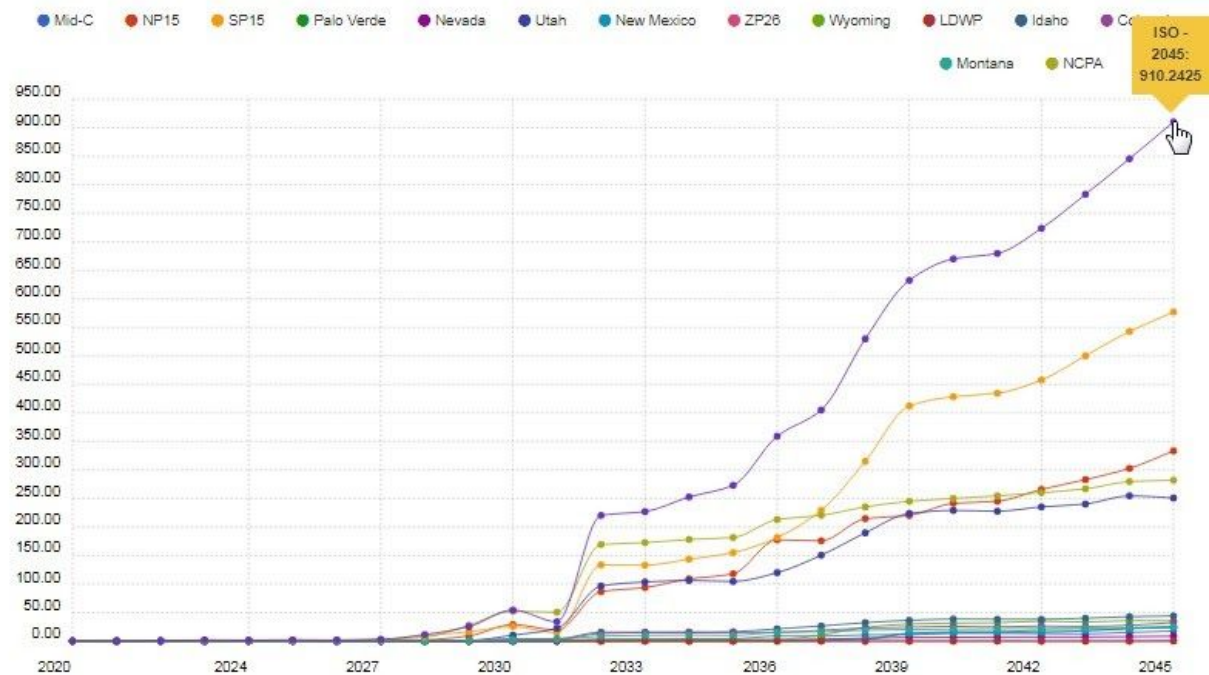
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Filter by Item: Unserved Demand | Item

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Unserved Demand - HL - Yearly



The Cal ISO sees an ever-increasing amount of unserved demand. But why is that?

Case Two - Exports (Imports) by Year and Hub



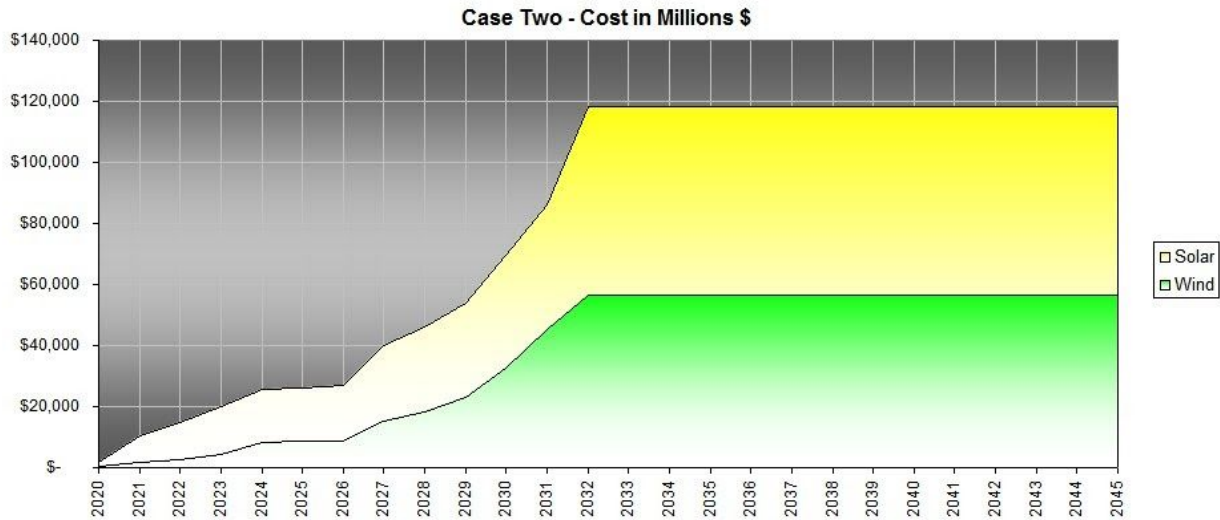
It's all about the transmission lines. The shock (no awe) of Green New Deal results in islands of survival. Every hub desperately tries to meet its own demand, and the result is an overall decline in transmission line loadings. Check out the ISO; it goes from importing around 7000 aMW in 2020 to just 1600 by 2045. The MidC cuts its exports from 4000 to only 1200 while Palo Verde goes from exporting about 3700 aMW to *Importing* 3700.

The big loser in all of this reshuffling of energy are the net importers of energy, and the largest of those is the Golden State. The state with the most vocal advocates of a cleaner world also become the biggest payor for its Elysium. Ironic, since its total carbon emissions are unchanged. This should come as no surprise, California has always favored exporting its pollution, hence the 7000 aMWs of imports. Those imports disappear once they foist their vision on the rest of the WECC. Ironic.

Costs

What will this dystopian dream cost?

Case Two - Cumulative Renewable Installed Costs by Year



About \$120 billion by 2030 (Case 2). That amount is nearly equal to the entire market capitalization of the WECC's IOUs. Of course, there are plenty of non-IOU utilities to share the burden. If every ratepayer in the WECC shared the cost equally, you could expect to see a Green New Deal adder of \$0.165/kwh. This would mean a near doubling of your monthly power bill for most WECC retail customers. Not Californians, their fees only go up about 50%.

What happens to the rate base that is retired? A generous approach (to equity and bondholders) would be to retain the "asset" in rate base and continue recovery. More in line with Green New Deal thinking would be to just write it off.

Conclusions

Green New Deal, as modeled above, does not work. Renewables are simply too unreliable to replace all coal and gas. A case can be made to retire coal plants, but that comes at a steep cost to the WECC's ratepayers - a near doubling of rates - which has implications of its own. What happens if rates are doubled?

You can be confident that the adoption of distributed generation technologies will increase. But all that means is the revenue requirement denominator decreases (kwh sold) while the numerator (rate base) stays constant, all of which drives retail rates higher. Higher retail rates mean accelerated distributed generation adoption rates. In other words, a vicious cycle of decaying loads and angrier retail customers.

There might be another scenario that works. What if every home with a solar factor > X% installs 50-100 kilowatts of solar panels, along with 100 kw of batteries? Could a home become self-sufficient? Not many could site that much solar capacity today, but in ten years the watt per square foot will grow. This strategy may be the only viable Green New Deal option. Its implications for the utility industry are less rosy as they become just a pipes and wire concern stuck with billions of unrecoverable assets.