Missed interconnections in the Inflation Reduction Act

The Inflation Reduction Act helps clear a path to cleaner energy but obstacles in transmission and distribution remain.

The Inflation Reduction Act (IRA) is bold legislation aimed at addressing climate change through a series of incentives to increase renewable energy development.

While a positive step forward, the incentives outlined will drive companies to accelerate project plans, which in turn, will accelerate multi-year interconnection queue times – potentially increasing the time-in-queue from 3.5 years to above 4 years in the near term. Taken along with the significant funding gap for transmission and distribution infrastructure, these well-intentioned incentives will create substantial interconnection burdens for new renewable projects.

To prepare, companies should adapt their energy and decarbonization strategies to align with these trends – including evaluating new or re-evaluating previously shelved behind-the-meter opportunities.

The Inflation Reduction Act (IRA) extends existing renewable energy tax credits for wind and solar projects that begin construction prior to 2025. The IRA also creates a new zero-emission technology neutral (including battery storage, geothermal, SMRs) tax credit that comes into effect for projects placed in-service after 2024[1].

In short, the IRA brings certainty to clean energy industry stakeholders due to the longevity of the tax credit scheme. It also provides a substantial boost to clean energy in the US with some analyst estimates forecasting 155 GW[2] in additional wind and solar capacity in the US.

All these changes are welcome steps towards addressing the climate crisis; however, the IRA will likely make the already slow grid interconnection process even slower by not sufficiently addressing queue backlogs and investment in transmission infrastructure.

1. Inflation Reduction Act of 2022 Senate Document, 2. Rystad Energy

Interconnection queues: Waiting is the hardest part

Connecting to the grid has recently become a more time-consuming process for major Independent System Operators (ISOs)/Regional Transmission Organizations (RTOs) with the median time-in-queue increasing from 1.5 years in 2015 to 3 years in 2021[3].

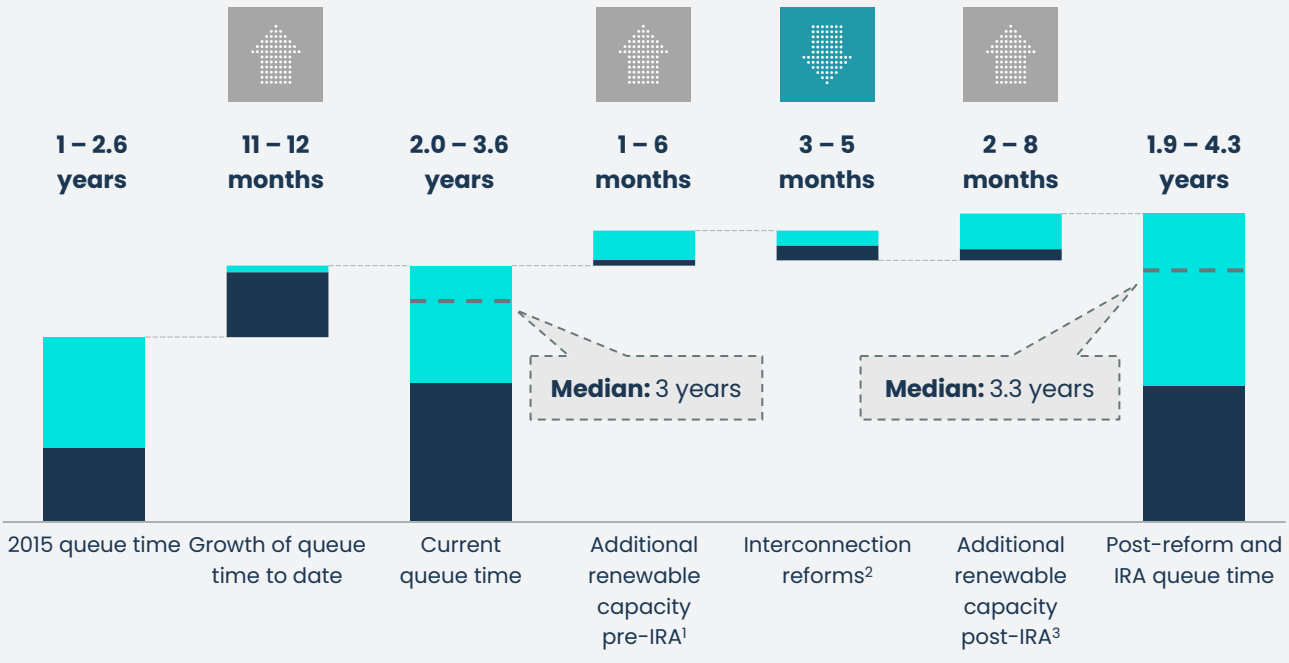
To address the backlog, the Federal Energy Regulatory Commission (FERC) and select ISOs introduced interconnection (IC) reforms, such as first-ready and first-served and increased financial requirements[4]. These reform-focused ISOs estimate their efforts could reduce standard processing times anywhere between 10-27%[5]. Still, these queue reforms do not address the problem at hand.

In the past, IC applications often exceeded standard processing times. The IRA is expected to spur an influx of additional renewable projects that are forecasted to come online by the end of the decade. This increase in renewable projects, coupled with already anticipated 'pre-IRA' increases are likely to nullify or overwhelm any hoped-for queue reduction times from the reforms, with queue wait time ranges forecasted to be between ~2 to 4.3 years.

In anticipation of the extended timeframes for renewable energy projects, companies should thoroughly review their energy strategies and decarbonization timelines.

Forecasted interconnection processing time

Years - colours represent range



Source: EIA Annual Energy Outlook 2022
1. Estimated based on % increase in rate of capacity from 2022-2030 compared to 2014-2020
2. Reforms based on PJM and MISO estimates that range from 10%-27% decrease in standard processing time
3. Capacity addition estimates based on analysis from Rystad Energy

3. Clean Energy Grid, 4. Federal Energy Regulatory Commission, 5. PJM Reform Plan and MISO reform presentation

Funding for interconnection: A drop in the ocean

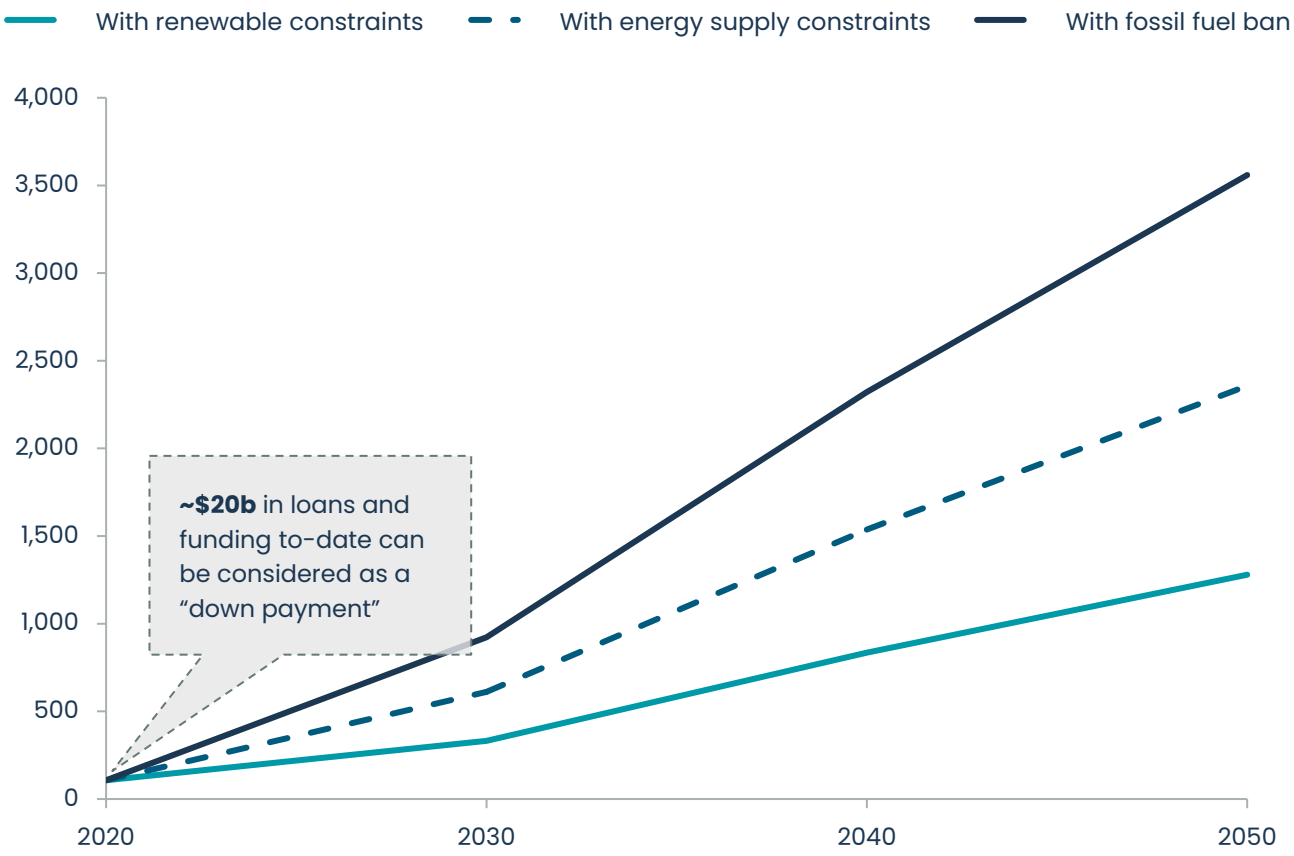
With a few limited exceptions, major ISOs have seen their IC costs increase by 100-400%[3] for solar and wind projects (primarily due to network upgrade costs). These rising costs create a substantial burden on the developers of potential renewable sites and can negatively impact project economics.

The Inflation Reduction Act and the Bipartisan Infrastructure Law provide an estimated $20 billion in loans and funding assigned for transmission infrastructure[6] (which includes costs related to interconnection). While this may seem generous, it is only a fraction of the estimated =$1.3-3.6 trillion[7] required to achieve a net-zero economy by 2050.

To better prepare, organizations should factor-in increased interconnection costs to plans for grid-connected renewable energy, as well as explore behind-the-meter solutions for relevant use cases.

Transmission line investment by year in 'High Electrification[1]' scenarios

Estimated capital spend[2] required by decade ($bn)



Source: US Department of Energy, Princeton "Net-Zero" America Report; *: in 2018 dollars; 1: Nearly full electrification for buildings and transport all three scenarios, 2: Calculated based on % of total spend in 2050 identified in Scenario 2: w/energy supply constraints

3. Clean Energy Grid, 6. US Department of Energy, 7. Princeton "Net-Zero" America Report

Changes in energy strategy: Turning obstacles into opportunities

Medium-term certainty and economic incentives provided by the IRA tax credit scheme enable companies to pursue more ambitious renewable energy projects. However, interconnection delays and underinvestment pose obstacles towards achieving clean energy at-scale in the near term. Organizations can overcome these obstacles by reevaluating their energy strategies.

First, companies must understand how the gap between current and required transmission infrastructure spend could impact how specific projects are analyzed and evaluated.

Secondly, companies should consider how to take advantage of renewable energy tax credits offered on zero-emission technologies to pursue behind-the-meter solutions. For example, using stand-alone battery storage facilities in eligible projects could lead to advantageous partnerships between large industrials and battery storage companies. Coastal industrial operations could take advantage of liberal domestic production requirements for offshore wind energy. In addition, certain organizations could see emerging technologies like geothermal and small module reactors (SMRs) as more feasible in some behind-the-meter scenarios with these new incentives.

Finally, given all the complexities described above, companies should consider how to organize themselves to drive project results.

Conclusion

As the initial excitement around the IRA fades and the implications slowly set in, organizations can navigate the new landscape through careful consideration of how potential obstacles can be turned into value-creating opportunities.

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