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Headwinds for US Gas Power: 2021 Update on the Growing Market for Clean Energy Portfolios

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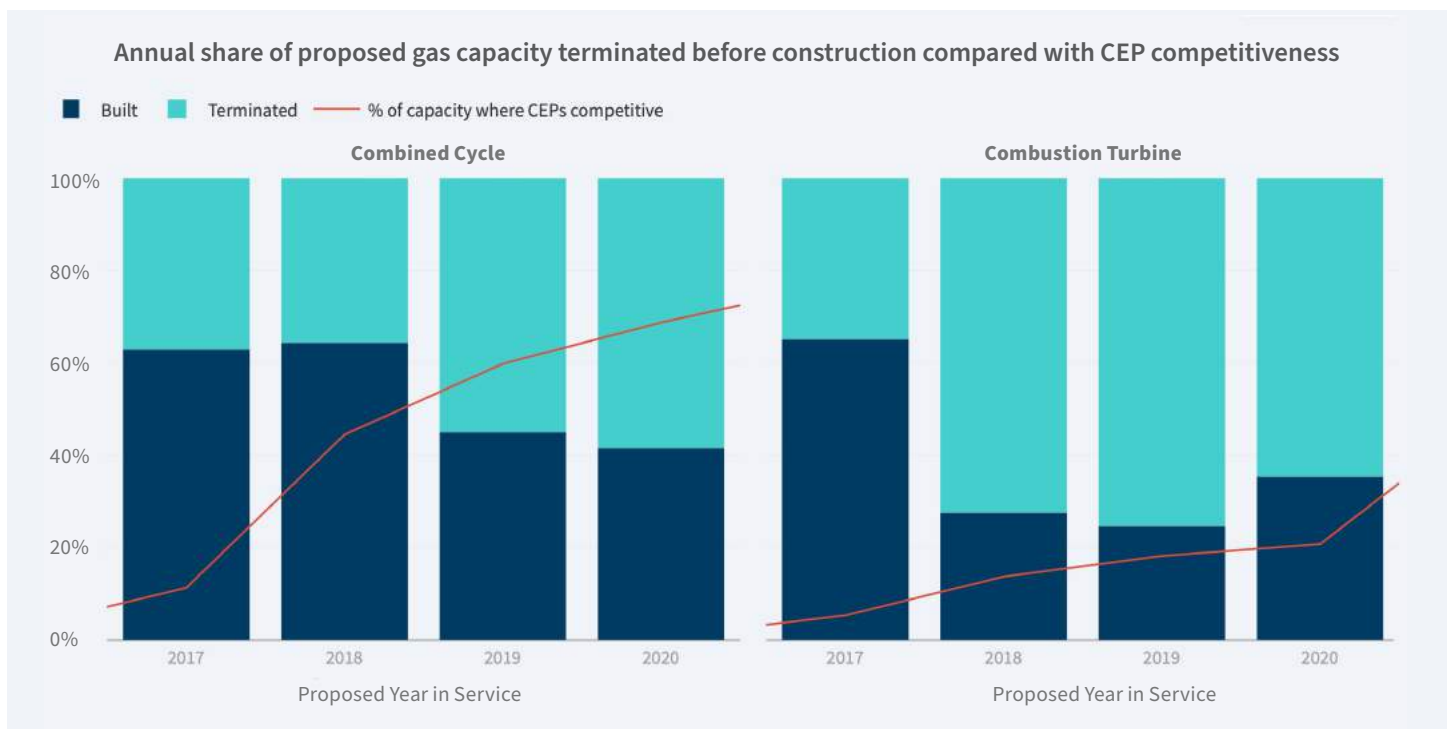
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Many people still view gas power plants as a “bridge” to a clean energy future—with over 88 GW of gas proposed across the United States as of late 2021. The pervasive belief is that investing in new gas-fired power plants is necessary to achieve a low-carbon grid. In 2021, utilities and other investors anticipate investing more than \$50 billion in new gas power plants over the next decade, locking in more than \$140 billion in costs over their projected lifetimes.

But gas power is losing steam. In the past five years, market dynamics have fundamentally shifted against new investment in gas-fired power plants. Since 2018, the total capacity of new gas deployed has declined. In the past two years, a combination of economics and advocacy has led to the cancellation prior to construction of more than 50% of proposed new gas plants, as seen in Exhibit 1.

Clean energy portfolios are gaining momentum. Clean energy portfolios (CEPs)—combinations of wind, solar, energy efficiency, demand response, and battery energy storage that can provide the same reliability services as a gas-fired power plant—are increasingly being deployed to avoid the need for new gas investment. The falling costs of renewables and batteries have increased the competitiveness of CEPs over proposed gas over time, as shown in Exhibit 1. The components of CEPs, including wind, solar, and battery energy storage, represented over **90% of new capacity** entering interconnection queues in 2020.

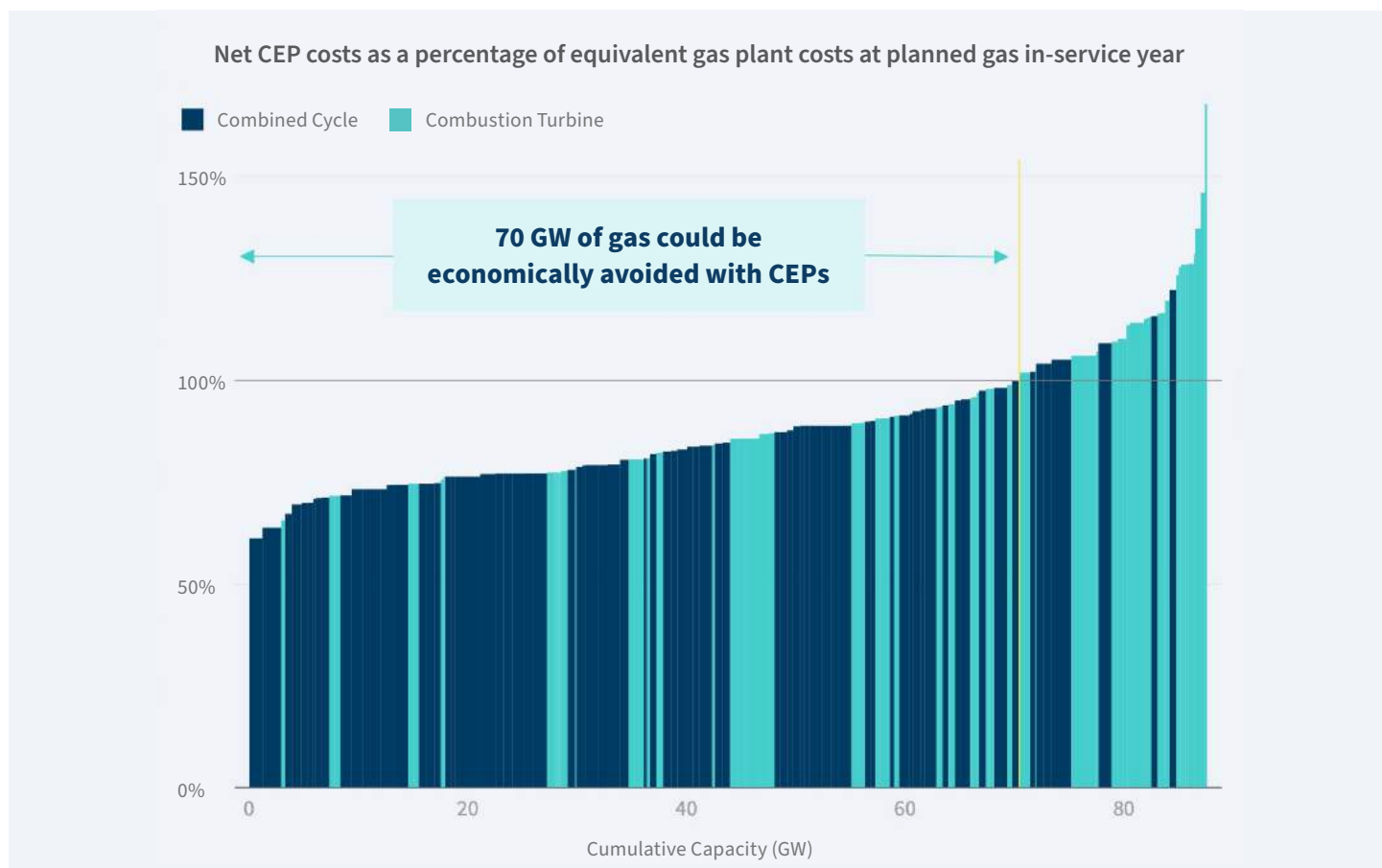
Exhibit 1 CEPs are Increasingly Competitive, Leading to Gas Plant Cancellations



Building clean energy portfolios is a cheaper option in more than 80% of the sites where gas plants are proposed to enter service by 2030. As of late 2021, at least 70 GW of proposed gas could be avoided economically with CEPs, saving \$22 billion and 873 MMT of CO₂ over project lifetimes (see Exhibit 2).

Exhibit 2

CEPs are Generally More Economical than Proposed Gas Plants



Proposed gas plants in 2021 face strong economic and policy headwinds. In addition to present-day economics, six trends create risk factors that are likely to further erode the case for investment in new gas power plants.

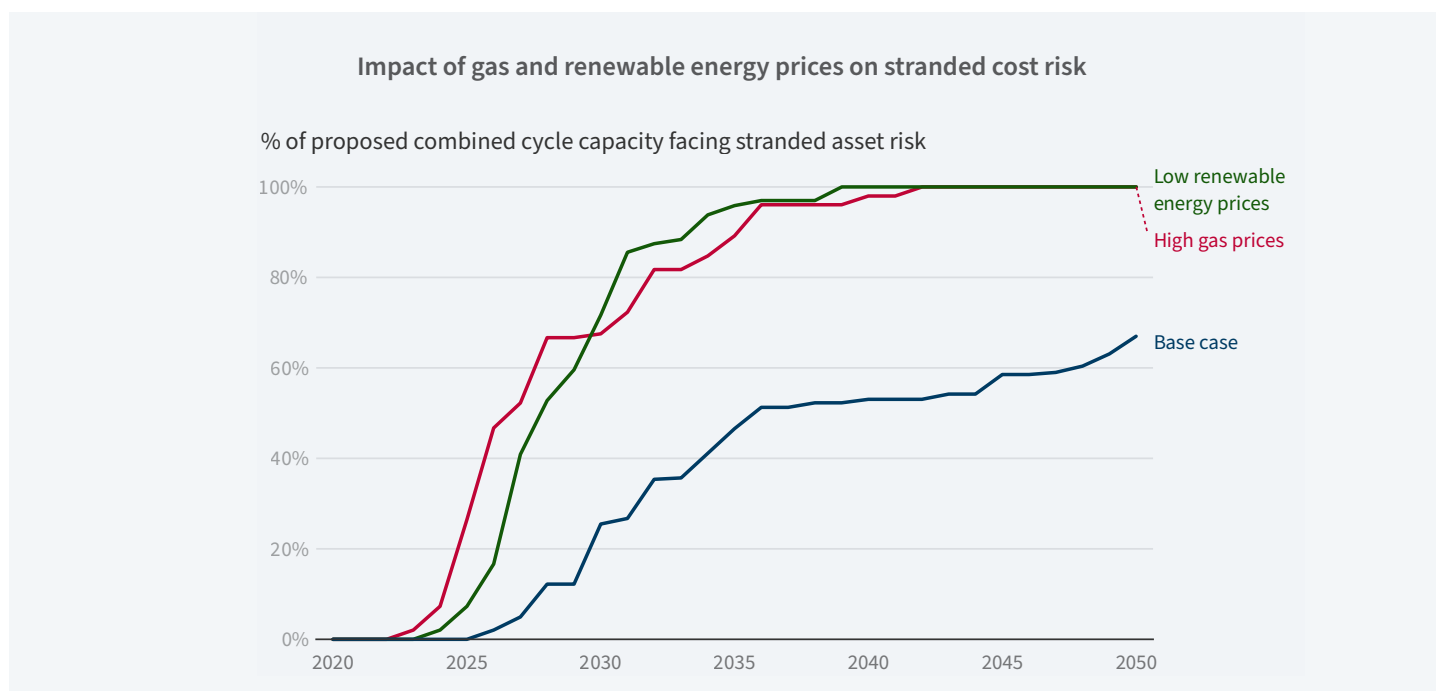
- **Gas prices:** If gas price trajectories return to 2021 highs, **88%** of new gas plants will be uneconomic relative to CEPs at their proposed construction date.
- **Fuel security:** If gas plants are required to bear the cost of securing reliable fuel supply to guard against the kind of outages on display in February 2021 in Texas, **95%** of proposed gas plants would be uneconomic.
- **Jobs:** If policymakers continue to prioritize job creation, **100%** of proposed gas plants are threatened, as clean energy portfolios lead to higher net job creation than new gas plants.

- **Renewable energy prices:** If cost declines for renewables continue at their recent pace, **91%** of new gas plants will be uneconomic relative to CEPs.
- **Human health:** If policymakers account for the cost of human health impacts of pollution from new gas-fired power plants, **94%** of new gas plants would be uneconomic.
- **Community impacts:** If policymakers prioritize minimizing impacts to marginalized communities due to new gas plant construction and operations, **88%** of proposed plants are threatened.

These dynamics create significant stranded cost risks for gas plants that get built. In our central analysis case, 40% of combined cycle gas plants proposed for construction will cost more to operate than a new CEP costs to build within 10 years, as depicted in Exhibit 3, making it likely that these plants will fail to secure revenue sufficient to keep operating well before their anticipated economic lifetime. With either lower renewables costs or high gas prices, the percentage of plants with stranded cost risks within 10 years could rise to 80%–90%.

Exhibit 3

New Gas Plants Face Growing Stranded Cost Risk



The window for building new gas plants is rapidly closing. CEPs are becoming more competitive compared with gas plants, and the economic and policy-related risks faced by new gas plants continue to strengthen. The total capacity of gas plants built is on the decline, as the proportion of plants canceled before construction has continued to rise. Declining renewables costs, rising gas prices, and any requirements for firm gas supply will erode proposed gas plant economics. As policymakers and advocates prioritize human health, job creation, and impacts to low-income communities and communities of color, proposed gas plants will face further hurdles.

Utilities, regulators, and investors can do three things to avoid making uneconomic investments in new gas projects.

- Use a competitive, all-source procurement process to determine the least-cost, least-risk options to meet emerging grid needs.
- Consider non-economic factors when making decisions to procure new resources, especially given increasing policy risks to new gas power plants.
- Include an assessment of economic and policy risk over the lifetime of new gas projects to understand the potential for stranded costs.