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# Reliability Implications of a Changing Generation Mix

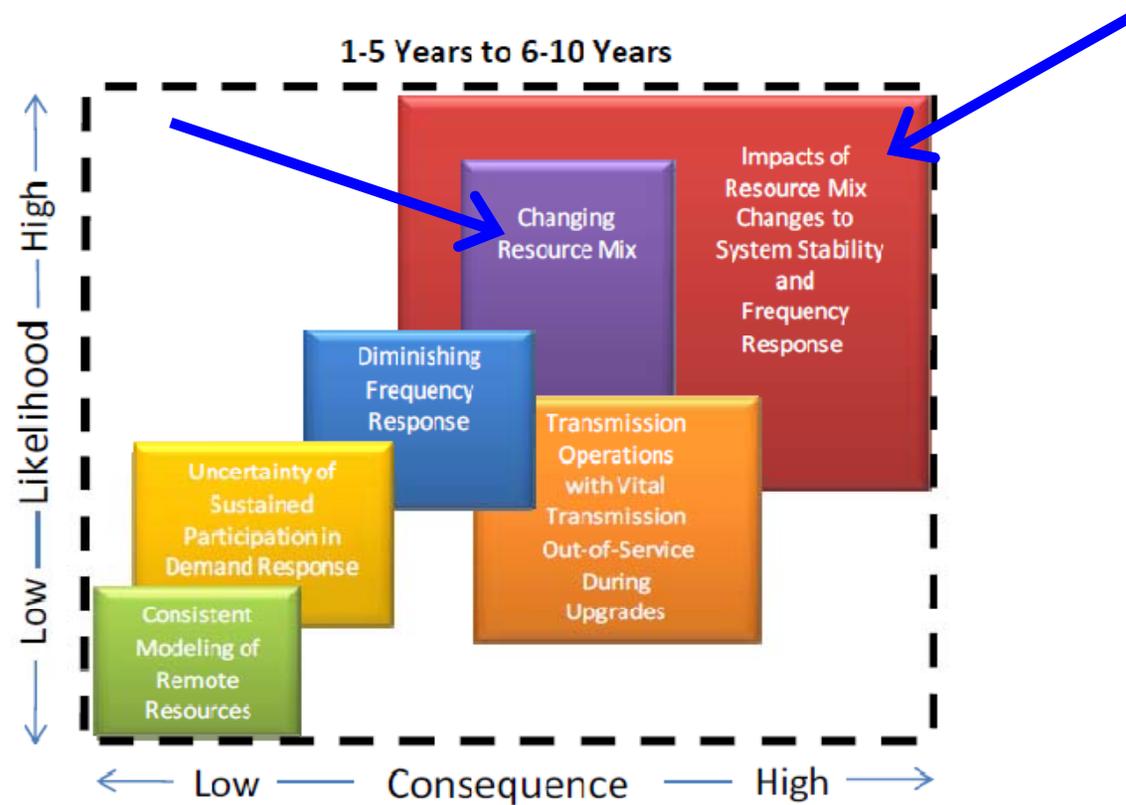
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Federal Energy Regulatory  
Commission



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## Emerging Issues



Source: 2010 NERC Long-Term Reliability Assessment



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## Generation Mix Is Changing

Fuel	2010	2019 Projected
Coal	31%	26%
Gas	29%	30%
Dual Fuel	11%	13%
Nuclear	11%	12%
Hydro	12%	9%
Renewables	1%	5%
Other	4%	5%
Total	100%	100%

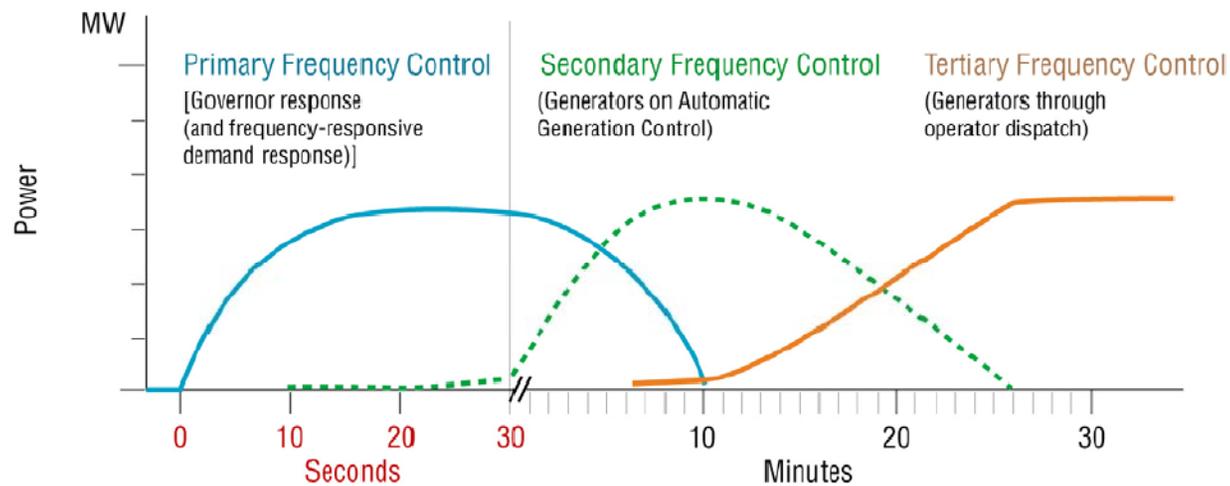
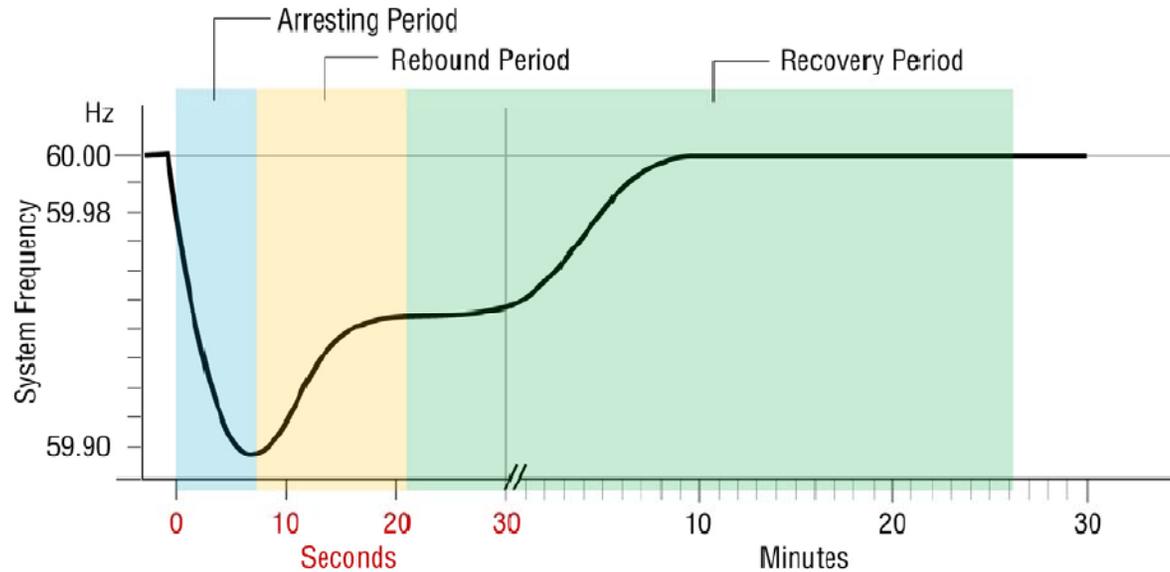
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# Primary Frequency Control





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# Operating reserves

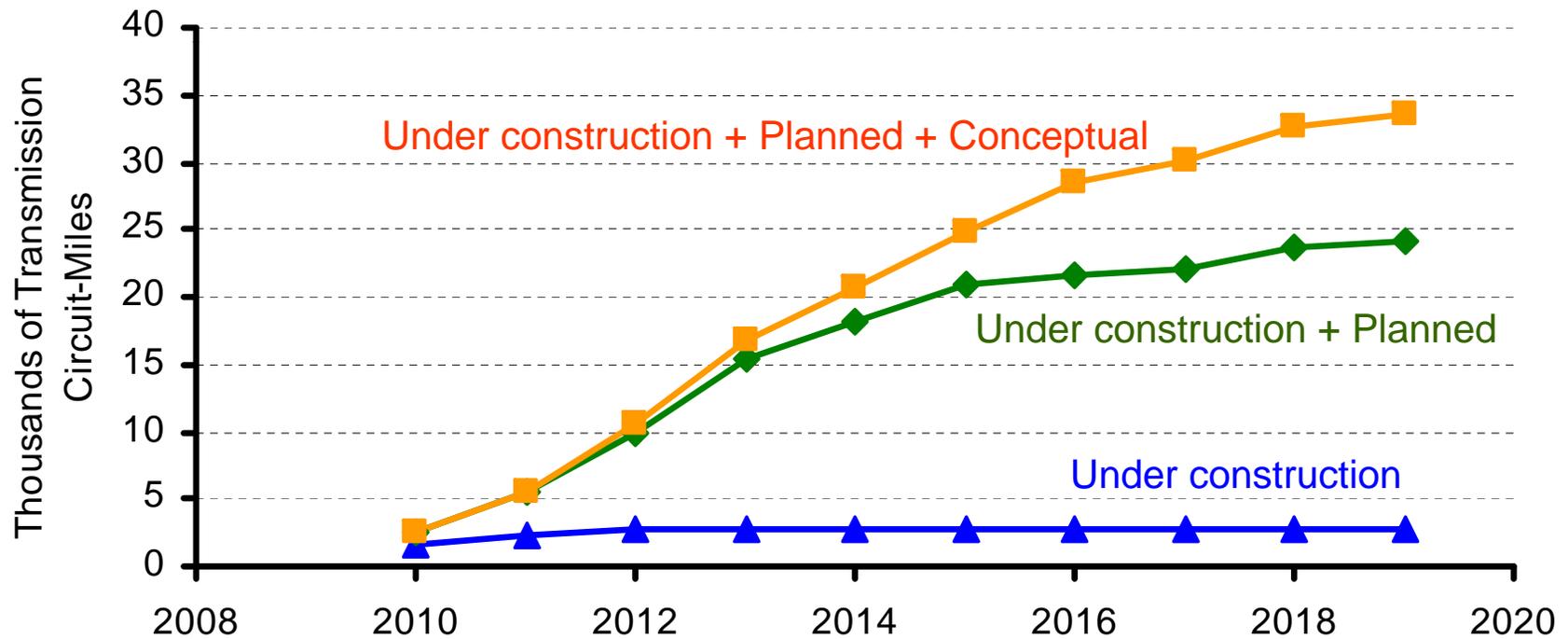
- Larger generating units may require increased contingency reserves
- Planners and design engineers need to avoid single points of failure in plants or switchyards
- Ability to reduce generation during minimum load periods may be desirable



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## Transmission



Source: 2010 NERC Long-Term Reliability Assessment



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**Thank you**