

# The Clean and Secure Grid

The Clean and Secure Grid would build upon existing technology and infrastructure to create a more efficient and environmentally sound electrical grid system across the lower 48 states. Over the last six years, Dr. Alexander MacDonald, former Director of NOAA's Earth System Research Laboratory, lead a team of scientists to research and construct a cost optimized [strategy](#) to **reduce carbon emissions of electricity generation by up to 78% in the power sector** by transmitting regionally produced wind and solar energy, integrated with natural gas, across long distances to far away energy markets using an underground high voltage direct current (HVDC) grid system. This would be the greatest achievement yet in the effort to mitigate climate change. The Clean and Secure Grid would replace the current patchwork of unorganized regional utilities with a smarter and more efficient system. Much like driving on a freeway instead of surface roads over long distances, the Clean and Secure Grid would act like an electricity superhighway.

Not only would the underground power lines transmit electricity more efficiently, they would also be more resilient to solar storms and terrorist or rogue state attacks. A geomagnetic solar storm, much like the Carrington event of 1859, could destroy the existing grid system leaving everyone without power for at least several years. These storms could happen at any time and are impossible to predict. A terrorist organization or rogue state could cause a similar effect on a smaller scale by detonating an electromagnetic pulse over any area of the country. The solution to this problem is burying the grid under several feet of soil that would protect powerlines from natural or human caused threats.

The new infrastructure would be privately financed upfront and paid for by consumer utility bills over time. Including the added user fee for the new grid, the cost of electricity would only be one cent higher per kilowatt-hour, a small price to pay for **greater national security and a drastic reduction in greenhouse gas emissions.**

## Additional Benefits

- A new market for thousands of long term jobs to build, operate, maintain the national grid and renewable energy infrastructure
- Lower dependence on foreign energy sources
- Greater resilience to extreme weather events due to the underground placement of electrical cables.

## Implementation

Powerlines would follow existing rights of way to reduce legal complications and expedite the construction. The grid would be built and maintained privately with individual segments open to private bidders. It would be built by existing HVDC cable manufacturing plants throughout the United States and would create a highly competitive manufacturing market for wind turbines and solar panels, leading to sustainable and high paying jobs across the country.

*Please send your questions to [info@cleanandsecuregrid.org](mailto:info@cleanandsecuregrid.org).*