

Valverde Power Solutions' Pickens Plan 2.0

Converting Abundant Natural Gas to Clean Power while Safely Sequestering CO₂

The Past

Some of us may remember 15 years ago when the visionary oilman and financier T. Boone Pickens put forward his Pickens Plan to reduce the United States' dependence on foreign oil. That was particularly important in 2007 as the US was a net importer of some 5 million barrels of oil per day with the oil price heading north.

The Pickens Plan was simply to build extensive wind power through the Midwestern plains to free up natural gas for freight haulers and automobile transportation through a compressed natural gas (CNG) distribution network. His plan was solid and it was even endorsed by John Kerry and the Sierra Club who were not normally allies of Mr. Pickens.

The wind power part of the plan gained serious traction and today we have extensive electrical power in the mid-continent generated from wind turbines. However, the natural gas part of the plan for transportation did not have the same uptake as wind power. Part of the reason for this is the advent of the fracture stimulation revolution in several US oil and gas basins. Rapid well completions, tight well spacing and large initial production rates from these numerous new wells provided a tremendous boost to domestic oil production. The copious amounts of crude resulted in lower oil prices and eventually the US even became a net oil exporter for a short while.

But in our current times the energy supply situation has echoes of 2007. US crude oil production oil has significantly decreased, crude imports and commodity prices are rising, and at the same time there is growing consensus that we should stop burning fossil fuels for transportation. The goal therefore once again is to reduce oil consumption for transportation.

The Future: Pickens Plan 2.0

Today we recognize that the transportation replacements need to be as carbon neutral as possible. The answer is to move to a new plan which we call the Pickens Plan 2.0. Our plan puts forth that natural gas for transportation should be replaced by carbon-free electrical power produced from natural gas. The big difference here is that we can now safely sequester that CO₂ from the natural gas combustion in underground reservoirs and evolve toward completely carbon-neutral passenger vehicle transportation.

To effectively arrive at carbon-neutral transportation, we need to increase the total amount of electrical generation to handle the charging of electric vehicles. Valverde believes the best way of adding new, clean power is utilizing Oxy-Fuel power generation. The Oxy-Fuel technology is new to electrical power generation, but it has been extensively used in other applications such as the US Space Shuttle rocket engines. Oxy-Fuel has significant advantages over other methods of carbon capture and we believe it will become the dominant technology used to produce clean electrical power. This is the key revision that gives us the new and improved Pickens Plan 2.0.

Here are the key components of the plan:

- Continue to build out wind and solar power as in the original Pickens Plan
- Build out Oxyfuel power generation and sequester the CO₂
- Increase the total amount of carbon-free electrical power to electrify the passenger transportation fleet
- The dispatchable and flexible Oxy-Fuel power supports the renewable power supply and improves renewable usage
- Oil used in transportation is reduced significantly and reserved for critical uses such as petrochemicals
- CNG can still be used for heavy vehicles to replace diesel

In 15-years' time we could see US grid power being 30% larger and split into three roughly equal parts; renewables, base load legacy generation and clean Oxy-Fuel natural gas generation. Such a plan would significantly reduce greenhouse gas emissions, have a positive impact on the overall climate and contribute strongly to meeting the Paris Accords targets to limit global warming.

We know that T. Boone would approve.

For more information on Valverde Power Solutions, please visit www.valverdepowersolutions.com

For more information on the original Pickens Plan, please visit www.pickensplan.com