An energy upgrade

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The credit rating downgrade of the US and others, coupled with the threat of a double-dip recession and abysmal employment outlook, has finally gained the undivided attention of global political leaders. The US has demonstrated that it knows how to create jobs – almost a trillion dollars of stimulus spending did this at a whopping cost of somewhere between $222,000 and $586,000 per job. The new round of stimulus announced by the Obama Administration will surely create more jobs – but at what cost and for how long? Job creation is easy. Sustainable job creation is decidedly more complex.

If nations thought more like businesses, then introspective SWOT analyses examining competitive strengths, weaknesses, opportunities and threats could serve as rough guides to action. While energy supply is still a potential weak spot, recent changes in technology and our understanding of natural gas supply have turned the tables and given several countries the distinct advantage of access to newfound supplies of natural gas from shale. The revolution in natural gas production is driving a renaissance in manufacturing, power generation, transportation, and even the marine industry – which is eyeing a wholesale transition from diesel to gas.

Everyone seems fond of comparisons with Saudi Arabia when it comes to energy, but few realize that the US is the Saudi Arabia of natural gas, with production greater than Russia and a 200-year supply that exceeds the equivalent oil reserves of Saudi Arabia. The story of natural gas is particularly remarkable, as just a few short years ago the conventional wisdom was that the US was running out of natural gas and needed to construct new receiving terminals for the import of liquefied natural gas (LNG) to supplement dwindling domestic supplies.

However, the convergence and refinement of complex production technologies, such as horizontal drilling and 3-D seismic and hydraulic fracturing, have allowed the US to economically access vast shale resources and, almost overnight, reverse the domestic decline in production. The rush is now underway to modify these import facilities to allow for export of US natural gas. The impact on jobs is profound.

The abundance of natural gas supplies will lead to a transformation in how electricity is generated – a shift from a system dominated by coal to one where natural gas is on the rise. Smaller, natural gas-fired, distributed power plants are cleaner and more efficient than large-scale coal plants located far from the end user. Advances in generation technology enable these power plants to also be started and stopped quickly and often – unlike baseload coal plants, which do not allow for 'cycling'. What this means is that natural gas will also be an enabler of clean renewable generation, such as from wind and solar resources. Because the wind does not always blow when we want, and the sun does not generally shine at night, natural gas-fired generation can balance out this intermittency and work hand-in-hand with clean renewable technologies.

In the US, recent regulatory changes announced by the Federal Energy Regulatory Commission (FERC) will allow the integration of these renewable and distributed resources on a more seamless basis and eventually create a robust market for 'ancillary services' to support the transmission grid.

While the new energy paradigm is not the only answer to the global economic plight, it is surely one of the key selling points that will allow developed and developing nations to compete globally and bring back the jobs that have been lost over the last decade. Energy is the lifeblood of the world's economy, and these new supplies of natural gas and clean and efficient power will provide a much needed transfusion to a patient in rapid decline. These resources can, and must, be developed responsibly with sensible government policies that protect the environment, safety and the economy.

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