



The renewable energy spin doctor is in.

And he has diagnosed the patient as gravely dangerous and infectious.

Diane Moss, July 10, 2015

Climate change skeptic and PR consultant Rupert Darwall recently wrote an editorial called “Obama’s Renewable Energy Fantasy” that spins a dire story of renewable power as a threat to economies around the world, the U.S included.¹ But it turns out that there’s more to the real story and that the patient – that is, renewable-based electricity - just needs a dose of facts to show great improvement.

THE SPIN:

Mr. Darwall pessimistically concludes in the piece that increasing renewable energy “does not produce jobs, growth or prosperity.”

MORE TO THE STORY:

In the U.S. alone, the renewable power sector actually employs hundreds of thousands of people.²

This is despite the fact that renewables only accounted for approximately 13% of the nation’s electricity mix in 2014,³ and that the sector has received far less government support at this stage of development than conventional energy industries.

A report by DBL Investors detailed that the United States federal spending on fossil fuels and nuclear energy has dwarfed spending for renewables both cumulatively and in periods when conventional energies were emerging industries. “In inflation-adjusted dollars,” the firm found, “nuclear spending averaged \$3.3 billion over the first 15 years of subsidy life, and O&G subsidies averaged \$1.8 billion, while renewables averaged less than \$0.4 billion.”⁴

Other analysts have additionally concluded that renewables and efficiency improvements not only generate jobs, but in greater numbers per watt of energy generated than fossil-fuel generation industries. A 2014 report by the UK Energy Research Center found that the “magnitude of the difference is of the order of 1 job per annual GWh produced.”⁵

Similarly, a joint study by the United Nations Industrial Development Organization and the Global Green Growth Council, found that renewable energy generated more jobs per million dollars spent than fossil fuels.⁶

1 <http://www.wsj.com/articles/obamas-renewable-energy-fantasy-1436104555>

2 <http://www.renewableenergyworld.com/articles/2015/01/fact-sheet-renewable-energy-job-numbers.html>

3 7% of the 13% is hydropower. See EIA: <http://www.eia.gov/tools/faqs/faq.cfm?id=427&t=3>

4 See: <http://www.dblinvestors.com/documents/What-Would-Jefferson-Do-Final-Version.pdf>

5 <http://ecowatch.com/wp-content/uploads/2014/11/UKERC-Low-Carbon-Jobs-Report.pdf>

6 http://www.unido.org/fileadmin/user_media_upgrade/Resources/Policy_advice/GLOBAL_GREEN_GROWTH_REPORT_vol1_final.pdf



As for Darwell's bleak forecast for growth, the U.S. GDP underwent the greatest growth (2.4%) since the recession in 2014,⁷ the same year renewables that made up well over half (57%) of new electricity capacity.⁸

There is also plenty of evidence that countries with high levels of renewable energy adoption are economically strong. The article goes to great lengths to warn us about Germany, for example, which is, in fact, the 4th largest economy in the world despite a population that is 4 times smaller than that of the US.

Policymakers play a major role in ensuring whether the renewable energy industry has a chance to continue to grow, so that jobs in these sectors remain and new ones are created. Essentially doing away with renewable energy programs, as Darwall recommends, would do the opposite.

Bottom line: Mr. Darwall's conclusion about renewable energy being a drag on the economy and jobs is wrong headed.

THE SPIN:

The author warns Americans against following Europe's "rocky road" with renewables, claiming that "Germany passed its first renewable law in 1991 and already has spent \$440 billion (€400 billion) on its so-called Energy Transition. The German environment minister has estimated a cost of up to \$1.1 trillion (€1 trillion) by the end of the 2030s."

MORE TO THE STORY:

First, it is neither news nor a compelling argument that Germany is spending money on its transition to renewables. Any energy system requires an investment by the government. The conventional energy system is only conventional because of mass sums of public funds invested over decades, or in the case of coal, centuries.

Second, the piece seems designed to give the impression that Germany has just spent and spent without getting anything for its money. It fails to account for the economic benefits of Germany's renewable energy investment – e.g, avoided fuel import costs that are estimated at 8 billion euros or more a year, plummeting wholesale power prices, avoided health and environmental impacts, added revenue, leadership in new industries, and hundreds of thousands of new jobs.

Some government officials, such as the German Federal Ministry of the Environment⁹ and conservative parliamentarian Josef Goeppel have projected that these economic benefits will make up for or outweigh the costs by 2040.¹⁰

7 <http://www.forbes.com/sites/samanthasharf/2015/01/30/u-s-economy-grew-2-6-in-fourth-quarter-2-4-in-2014/>

8 <http://cleantechnica.com/2015/03/10/renewable-energy-90-of-new-us-electricity-generation-capacity-in-january-exclusive/>

9 http://www.germany.info/contentblob/2626714/Daten/699079/BMU_ElecFromRESources_DD.pdf

10 <http://www.goeppele.de/reden/2013/die-strompreisbremse-darf-keine-ausbaubremse-werden.html?PHPSESSID=4a789fee86eed56808bf58e2d9408ddc> (German)



Overall, the nation's energy transition has been embraced across party lines and has overwhelming support from German citizens. A recent poll found as many as 92% of Germans are in favor of the energy transition.¹¹

Bottom line: Is Germany investing a great deal in its renewable energy program? Yes, but every energy program requires investment, and Germans are overwhelmingly in favor their energy money being spent on clean renewables.

THE SPIN:

The article warns: "But high and rising energy costs are driving German companies to locate new capacity overseas."

MORE TO THE STORY:

The article cherry picks a complaint by BASF to draw this conclusion. However, the fact is that thousands of energy intensive companies in Germany have been exempt from having to pay almost any surcharges for the renewable energy transition.¹² Meanwhile, these companies have been benefiting from some of the lowest wholesale power prices in all of Europe, which have dropped significantly due to so much electricity generated by renewables on the grid putting downward pressure on the wholesale electricity market.

According to the German Chambers of Commerce and Industry, as cited by Clean Energy Wire, the vast majority of German businesses have no thoughts about relocating. In the meantime, the new industries created by the Energy Transition are a jobs engine, employing more than 370,000 people in Germany.¹³

For the German companies that have had to pay taxes and fees instead of wholesale prices, very little of the rise in recent years was actually due to support for renewables. Pure support costs for renewable electricity development in Germany from 2012-2014, two of the most controversial years for renewable surcharge rises, were in fact less than half of what shows up on customers' power bills as the surcharge for the national renewable energy program. The rest went to cover other costs, such as industry privileges for not paying into the renewable energy program and falling wholesale electricity prices, due to low European carbon prices and the downward pressure on spot market caused by the increase of renewables.¹⁴

Bottom line: The German industrial sector is healthy, not fleeing Germany in droves, and in fact, the biggest industrial energy users in the country have been enjoying the lowest power prices in years and some of the lowest in Europe.

11 <http://cleantechnica.com/2015/03/23/germanys-renewable-energy-revolution-social-license/>

12 <http://energytransition.de/2012/10/n-how-are-energy-intensive-companies-exempted-from-the-surcharge-for-renewable-power/>

13 <http://www.cleanenergywire.org/factsheets/where-energieewende-creates-jobs>

14 p. 5 EEG Surcharge for 2014, BEE (September 2013) http://www.eref-europe.org/wp-content/uploads/20130904_The-EEG-Surcharge-for-2014-Background-Paper.pdf



THE SPIN:

Darwell goes on to bash Germany's advancement of renewable electricity by stating: "Advocates of renewable energy such as Deutsche Bank anticipate that electricity from solar panels will cost the same as electricity from the grid (so-called grid parity) in the not-too-distant future. But none suggest that solar can do so now without subsidies."

MORE TO THE STORY:

First, it is a common misnomer that the Germany's massive adoption of solar power has been the result of subsidies. In fact, nearly all of it was not, which was explicitly laid out in a legal conclusion by the European court.¹⁵

The German policy that catalyzed the vast majority of renewable power uptake in Germany, i.e. the "feed-in tariff" law, simply guaranteed renewable generators payment for the power they generate and priority access to the grid. The policy set the price signals and helped even the playing field, so the free market had a chance to function without being so heavily biased toward conventional sources.

Second, Darwell is simply incorrect. Deutsche Bank and others already started reporting in 2013 that non-subsidized solar was reaching grid parity in several places like parts of California.¹⁶ UBS and Macquarie analysts around the same time forecasted that non-subsidized solar grid parity was imminent in many locations worldwide.¹⁷ More recently, in March 2015, Deutsche Bank reported "Unsubsidized rooftop solar electricity costs between \$0.08-\$0.13/kWh, 30-40% below retail price of electricity in many markets globally." Germany's retail electricity price is on average nearly 30 euro-cents/kwh,¹⁸ and even small solar systems reached grid parity by 2012.¹⁹

Third, so why single out solar? Solar photovoltaics have shown remarkable ability to approach global scale affordability with mere crumbs of government support compared to conventional energy. Why not pick on other types of electricity generation that that have received huge helpings of subsidies both cumulatively and at early stages of development, and that still draw from public coffers, namely natural gas, coal, or nuclear power?

If we really want to play fair and on a level playing field, solar should get more government support instead of being threatened to be soon largely cut off, as is currently the case in the U.S. and elsewhere.

Some energy experts actually think that "incentive" is a better word than "subsidy" to use for the type of meager federal support solar has received in the U.S. because so

15 http://ec.europa.eu/competition/publications/cpn/2002_3_67.pdf

16 <http://www.ilsr.org/solar-cheaper-grid-electricity-yes-no/>

17 <http://www.bloomberg.com/news/articles/2015-04-23/german-solar-costs-fall-to-third-of-rate-consumers-pay-for-power>

18 <http://www.bloomberg.com/news/articles/2015-04-23/german-solar-costs-fall-to-third-of-rate-consumers-pay-for-power>

19 <http://www.ise.fraunhofer.de/en/publications/veroeffentlichungen-pdf-dateien-en/studien-und-konzeptpapiere/recent-facts-about-photovoltaics-in-germany.pdf> See p. 11



little was given to kickstart the industry to its present day success - Bloomberg recently reported that solar is the fastest-growing U.S. electricity source - before the that support is being phased out, in contrast to conventional electricity sources.

Bottom line: The author's negative spin on solar "subsidies" is based on misreporting of the facts and fails to present a valid argument against renewables. What it does do is underscore his (and perhaps his clients') bias against renewable-based electricity.

THE SPIN:

The author goes on to lament: "Most damaging is the effect of renewable mandates on the power stations necessary to ensure the stability of the electric grid and balance supply and demand. Even a modest proportion of wind- and solar-generated electricity prevents gas- and coal-powered stations from recovering their fixed costs. This has led to the proposed shuttering of Irsching in Bavaria, one of Germany's newest and most efficient gas-fired plants. So unless conventional capacity also is subsidized, at some point the lights will start going out."

MORE TO THE STORY:

Once again, the author oversimplifies a complex problem and spins partial truths to argue why support for renewables is bad and throwing subsidies at conventional energy producers is good.

He doesn't share that one of the reasons that combined cycle natural gas plants like Irsching have been reported to be experiencing economic woes has nothing to do with renewable energy in Germany, but with coal imports from the US that are so cheap that German natural gas plants can't compete.²⁰

In criticizing conventional capacity's lack subsidies, he omits the fact that since 2013, Irsching's 4 and 5 blocks in fact have been supported to remain online by the Dutch government-owned grid operator, according to Reuters with "annual double-digit million euro" payments that are scheduled to last until 2016.²¹

Nor does he explain that along with the German mandate to prioritize dispatch of renewables into the grid, increasing amounts of renewable-based power generation in Germany (renewables account for about 35% of Bavaria's power mix²²), have, as mentioned, driven down wholesale prices on the electricity spot market, further weakening conventional power plants' ability to compete - but benefiting energy intensive industries,

20 <http://www.wsj.com/articles/SB10001424127887323744604578470841012284404>

21 <http://www.reuters.com/article/2015/03/06/eon-irsching-idUSL5N0W81NV20150306>

22 http://www.energieatlas.bayern.de/thema_energie/daten.html



as well as regular consumers who are starting to enjoy the savings being passed down by utilities.²³

Because natural gas is the most expensive electricity source, natural gas plants in Germany have been particularly hard hit, but Darwell's analysis leaves out that the pain does not appear to have been felt equally across the whole sector.

Key to natural gas-based power plants faring better is to have the flexibility to ramp up and down quickly, in order to make up for short term gaps in power supply when variable renewables like wind and solar are not able to feed into the grid. While Combined Cycle Natural Gas power plants like Irsching are designed to be flexible, running them for this purpose decreases their well-known efficiency to the point that economic performance suffers. Leading European energy research group Fraunhofer ISE reports that other types of power plants using natural gas have done better at complimenting fluctuating loads, and therefore at remaining financially viable, such as Combined Heat and Power plants (CHP) and gas plants that have gas motors instead of a combined cycle (gas and steam).²⁴

Journalist Craig Morris posits that Irsching may have worked better with more forethought into its placement and into implementing complimentary projects like a district heating network that could use its heat.²⁵

But despite its challenges and sitting idle all too often, does Irsching nonetheless have so much value to the grid, as Darwall argues, that it should receive subsidies?

That is a topic of debate in Germany, which is presumably why a communications professional like Darwall called attention to it last week.

One ministry spokeswoman, according to Reuters, relayed that shutting down Irsching is not a concern for grid reliability.²⁶ The grid operator does not seem to agree. In part because Bavarians have resisted local wind power and building transmission lines from windy northern Germany, both of which could compliment the region's large number of solar installations in helping to ensure supply stability, and because nuclear power is shutting down per federal law, in some cases ahead of schedule in Bavaria, there is some concern about the outlook for grid stability. Hence the grid operator's payments of late to keep the plant online.

A proposal released earlier this month by the German Ministry for Economic Affairs and Energy, which oversees the national energy transition (or "Energiewende") offers a clue regarding where things could be headed, and if it comes to fruition,

23 <https://www.cleanenergywire.org/news/many-german-households-get-cheaper-power-first-time-years>

24 See p. 67: <http://www.ise.fraunhofer.de/en/publications/veroeffentlichungen-pdf-dateien-en/studien-und-konzeptpapiere/recent-facts-about-photovoltaics-in-germany.pdf>

25 <http://energytransition.de/2015/04/energiewende-shuts-down-most-efficient-gas-turbine/>

26 <http://www.reuters.com/article/2015/03/06/eon-irsching-idUSL5N0W81NV20150306>



Darwell and fossil fuel advocates like him will not get the subsidies they want. But they will get a new market structure designed to help a limited number of flexible fossil fuel plants come online when the grid needs it.²⁷

The proposal would establish a capacity reserve that consists of 5 percent of peak consumption in Germany, which is equal to about four gigawatts production capacity, that will be kept on stand-by and be ramped up, if needed. The capacity reserve proposal is part of a larger federal overhaul of the energy market system to encourage greater flexibility in view of the increasing amounts of renewables called for by German energy policy. A more detailed overview of the comprehensive federal proposal in English is available on Clean Energy Wire.²⁸

What about all the rapid uptake of renewable power so far – is there any evidence that it has made the grid less reliable in Germany? No. With now more than 27% renewable power in the grid (and at some points up to 74%), Germany maintains one of the most stable grids in the world. Debates and fears about the grid being able to handle renewables have been going on since renewables arrived in the German electricity system. Those who were involved from the beginning recount constant warnings from those days that the grid would collapse if renewables made up even 4 or 5% of grid supply. No such disaster came to pass.

However, as penetrations of renewable generation increase past 40% or so of the mix, it has been long foreseen that new approaches to policy and market structures would be in order to enable adoption of a range of flexible technologies that are needed to ensure the grid operates smoothly, e.g. storage, load management tools, and for a time, some flexible conventional fuels.

Germany is in the thick of navigating this new frontier. As with any major transition, there will be winners and losers, and if the current government proposal is any indication, Darwell and those who think as he does on the issue will lose more than they hoped to.

Bottom line: Darwell is right that more renewables are posing financial challenges for conventional power plant owners in Germany, but his singling out of Irsching ignores nuances, and his broad insinuation that more renewables are damaging to Germany's grid reliability lacks solid foundation and comes off as another round of pro-fossil energy spin. Germany's grid has a strong history of stability, and stakeholders are tackling what needs to happen as more renewables come online to ensure that the lights stay on. But the national priority to transition to 80-100% renewable power, as well as to favor market mechanisms over direct subsidies, means Darwell's call for subsidizing fossil fuel power is not the current winner.

27 BMWi Proposal - Summary in English <http://www.bmwi.de/DE/Mediathek/publikationen/did=718200.html>

28 <https://www.cleanenergywire.org/factsheets/white-paper-presents-government-proposal-power-market-reform>



THE SPIN:

The article cites a “2014 Brookings Institution study” which “estimated that replacing coal with modern combined-cycle gas turbines cuts 2.6 times more carbon-dioxide emissions than using wind does, and cuts four times as many emissions as solar.”

MORE TO THE STORY:

The assumptions, data, and analytic methods used in this study have been contested by at least seven experts.²⁹ Have a look at the link provided in the endnotes.

Darwell's statement could mislead readers into thinking that combined cycle gas turbines emit less carbon-dioxide than solar and wind, which is not true. The IPCC, in its comprehensive analysis released in 2014 that compared lifecycle greenhouse gas emissions of electricity sources, found that solar, depending on the technology and size of installation, emitted up to more than 70 times less greenhouse gases over its lifecycle per kilowatt hour than combined cycle natural gas. Wind power emitted up to more than 90 times less.³⁰

The author of the cited Brookings Institute study actually writes that solar and wind, unlike combined cycle natural gas plants, emit no carbon. But his premise is that this doesn't matter because solar and wind are not reliable. The sun doesn't always shine, and the wind doesn't always blow, so unless there is storage, combined cycle gas plants win the carbon emissions contest because they can run all the time.

This is a common criticism of wind and solar. It's also outdated.

Wind and solar irradiation may be variable, but they are highly predictable. Prediction capabilities are continually becoming more accurate.

On the other hand, natural gas supplies have several challenges that make the sector not exactly the hallmark of predictability that the Brookings Institute report would have readers believe. Natural gas, by its nature as a fossil fuel, has limited reserves and is also subject volatile prices, environmental concerns, and tightening regulations. For nations without domestic gas resources, natural gas presents the added economic, environmental and geopolitical challenges of importing the fuel. While natural gas does have attributes that make it a potentially useful part of some region's transition to renewable energy – e.g. it can be used with flexibility, typically is lower in carbon than coal or diesel, and has an infrastructure that can be used by methane made from renewable sources – suggesting that it is across the board the superior investment to wind and solar for reducing carbon emissions is grossly exaggerated.

²⁹ <http://www.brookings.edu/blogs/planetpolicy/posts/2014/09/03-sorry-wrong-numbers> Note that the expert debate on the Brookings Institute website appears to have ended with the study's author, perhaps not surprisingly given his affiliation, getting the last word.

³⁰ See p. 1335 of [IPCC Working Group III – Mitigation of Climate Change, Annex II I: Technology - specific cost and performance parameters](#)



Wind and solar energy are also complimentary. The wind tends to blow when the sun does not shine and vice versa.

While storage can help fill the gaps, and is becoming increasingly cost effective at it, so can a range of other carbon free or carbon neutral renewables like biogas, hydropower, and geothermal. There are also emerging options that show promise for some locations like wave and tidal power and synthetic methane made with unusable renewable power. Electric vehicle batteries also can bilaterally feed and draw from the grid as part a solution, and load management technologies like VAR support, along with demand side management can also help smooth out fluctuating supply. Grid operators have additionally become increasingly skilled at balancing the variable loads to maximize their potential and minimize stress to the grid.

Demonstrating that this is not all just theory, hundreds of cities and regions are beginning to prove that a transition to 100% renewable energy is feasible and economical, such as Rhein-Hunsrueck in Germany, which is covering its whole power load with a combination of efficiently implemented renewables and exporting an excess for profit to neighboring regions.³¹

One of the biggest fundamental limitations of the Brookings Institute report cited is that comparing single electricity sources in isolation as it does (solar, wind, hydro, gas, coal, nuclear) doesn't reflect how the clean energy system is realistically evolving and how frontrunners on low carbon grid solutions are generally making decisions. Decarbonizing the power grid is not depending on one silver bullet technology, but is rather requiring thoughtful and comprehensive planning for how to combine a multitude of no and low carbon technologies that compliment each other. What will determine an energy system's reliability in the real world, as well as its environmental and economic success, is how and where a range of flexible clean energy technologies are implemented in coordination. Combined cycle natural gas plants may play a viable, effective role in some real scenarios, at least for a time, while in others, as has been the case in Germany, they've proven to be a tough fit.

Finally, this report also makes some purely untenable claims, like some of its numbers (and lack thereof) for nuclear power, which it uses to make the radical conclusion that new nuclear power is economically attractive. For example, Amory Lovins, in his excellent rebuttal, disputes the author's citing of the Nuclear Energy Institute's \$100 million price tag for a nuclear reactor's spent fuel disposal by sharing far more conservative industry estimates that move the decimal "one place to the right."³² This was generous of Lovins, considering that radioactive waste from nuclear power plants has to be stored safely for thousands of years, which no one currently knows how to do. The decimal might keep moving to the right until the end of our civilization or longer.

31 See <http://www.go100percent.org>

32 Lovins' initial rebuttal can be found here: http://www.rmi.org/Knowledge-Center/Library/2014-21_Frank-Rebuttal



The study author also doesn't mention the fact that the Price Anderson Act limits nuclear power plant liability in the U.S. to USD \$12.6 billion. In the aftermath of the Fukushima disaster, \$36 billion (4.5 trillion yen) in government backed bailout money has already been paid out to Tepco, with the total of the bailout fund coming to USD \$73 billion. Plus another USD \$1.5 billion (189.2 billion yen) of Japanese taxpayer money has already been spent, and about another billion dollars (116.7 billion yen) was spent by Tepco and Tokyo Electric Utility.³³ And the cleanup is just getting started.³⁴ Who pays the tab for the full toll of human and ecological suffering and damage?

No one is responsible for the true costs of nuclear power plants when they are approved, and everyone pays when they go wrong. If those true costs were factored in to the price of nuclear power, the cost would be off the charts.

Even with the cost as it appears on industry paper, the CEO of nuclear power leader Exelon had to concede upon his retirement a few years ago, that new nuclear power is uneconomical for the foreseeable future in the US.³⁵

Bottom line: The Brookings Institute report cited in Darwell's piece is ultimately more academic exercise than real-world tool. Its conclusions are based on questionable, incomplete, and sometimes non-credible data, and it certainly does not prove that combined cycle natural gas power plants are categorically a wiser investment for reducing carbon than wind or solar.

In conclusion, Mr. Darwall's frames his article as policy advice. But really it's just heavily biased, fossil fuel slanted spin. Those who need credible, balanced information to create informed policy opinions need to dig deeper for more of the story.

33 http://www.japanfimes.co.jp/news/2015/03/23/national/¥189-billion-in-public-money-spent-on-fukushima-cleanup-so-far/-_VaCMw0XjQnt

34 <http://www.ibtimes.com/japan-approves-long-term-fukushima-cleanup-plan-speeds-return-evacuees-1964021>

35 <http://www.forbes.com/sites/jeffmcMahon/2012/03/29/exelons-nuclear-guy-no-new-nukes/>