

**THE CASE FOR GAS POST COP21**

**Natural gas is the „low hanging fruit“**

**for**

**material and immediate reduction of greenhouse gases**

**by**

**Wolfgang Peters**

**The Gas Value Chain Company GmbH**



Uhlenhorstweg 17  
45479 Mülheim  
Germany

**Dr. Wolfgang Peters, MBA**  
Managing Director  
Mobile: +49-152 5320 4362  
Fax: +49-208 8484031  
Mail: [wolfgang.peters@gasvaluechain.com](mailto:wolfgang.peters@gasvaluechain.com)  
Web: [www.gasvaluechain.com](http://www.gasvaluechain.com)

## About the Author

Wolfgang has been working in the oil and gas industry for some 33 years: first with Mobil, then, between 2001 and 2016, with RWE, for both in different senior management positions in a variety of countries. He retired from RWE as CEO of the Czech RWE Supply & Trading CZ a.s. in March 2016. Wolfgang was involved in all parts of the value chain throughout his corporate career. In the late 80ies, he was involved in the the “hunt for new elephants”, i.e. new giant field discoveries in frontier areas all over the world. Later, he was twice responsible for market entry into the Dutch end user market, first for Mobil and later for RWE. He negotiated in Turkmenistan, Azerbaijan and Iraq to procure gas to fill the Nabucco pipeline. With Gazprom Export he negotiated and litigated about the adjustment of long-term gas sales agreements. As Eurogas board member he was engaged in gas advocacy.

Wolfgang now runs his own company: The Gas Value Chain Company (GVC), of which he is the sole shareholder and Managing Director. The value proposition of GVC hinges on Wolfgang’s in-depth knowledge of and experience in the changed European and global gas markets along the entire value chain. It renders i.a. project management services including negotiations and commercial expert support. Wolfgang also works as commercial expert in international arbitrations and mediations.



Wolfgang continues his gas advocacy engagement e.g. by GVC having joined Eurogas as the first member in the new category of “liaising members”. The article below is part of this continued gas advocacy engagement.

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## Introduction

The treaty of „COP21” (21st Conference of Parties under the United Nations Framework Convention on Climate Change) is widely perceived as decarbonization – understood as the abolishment of fossil fuels - being a “done deal”. The thrust of the agreement is however directed at the reduction of greenhouse gases (“GHGs”). It does not contain generally binding steps or targets to abolish fossil fuels. Its implementation hinges on individual pledges („Intended Nationally Determined Contributions“, „INDCs“) of the participating states for the reduction of GHGs. The INDCs vary in volume and content but also none of them prescribes the abolishment of fossil fuels. Moreover, it is undisputed amongst experts that the INDCs submitted in Paris do not suffice to achieve the 2 degree (let alone 1.5 degree) target. The author hypothesizes that such shortfall is essentially a manifestation of an “affordable subsidies constraint” in the face of renewables not (yet) having reached market maturity.

This conundrum is not widely known and has barely been discussed. It is, therefore, not surprising that individuals as well as lobby groups draw entirely different conclusions from COP21: From proclaiming the more or less “sudden death” of all fossil fuels without differentiating between coal, oil and natural gas to carrying on in “business as usual” fashion.

This article aims to demonstrate that the approach of COP21 must be understood as a reiterative process catering for “checkups” in 5 year intervals in order to work towards a progressive reduction of GHGs, to a large extent hinging on further technological progress and cost degression of renewables in order to overcome the affordable subsidy constraint.

In the meanwhile, the step-by-step approach of COP21 does not only legitimize, but rather dictates an imperative to push for a change in the mix *amongst* fossil fuels, namely in favor of the environmentally friendly natural gas. The author is of the decided opinion that natural gas is a „low hanging fruit“ in the quest to materially and immediately reduce GHGs. This is, to the detriment of climate protection, not recognized in Europe, and particularly not in Germany. In the following some of the aspects supporting the author’s hypothesis shall be discussed.

### Reputed energy outlooks projecting future fossil fuel use cannot be accused of cynically assuming failure of the agreement of Paris

The „BP Energy Outlook, 2016 edition“ in February 2016 was the first reputed energy outlook published after COP21. The base case projected a population growth of 1.5 billion until 2035, a doubling of global GDP and an increase in energy demand by 34%, such demand growth incidentally also including the removal of energy poverty of, as we speak, 1.6 billion people.

The correlation between economic growth and increase in energy demand was significantly reduced: instead of 2.3% per annum of increasing energy demand per unit of economic growth, only 1.4% per annum was assumed - a sharp decrease in energy, and carbon, intensity.

Nonetheless fossil fuels remain the dominant source of energy: they contribute 60% to the aforementioned growth in energy demand and comprise, in 2035, 80% of primary energy. The largest growth for fossils is projected for natural gas with 1.8% per annum, whilst oil grows with 0.9% per annum. Only coal “loses“, with a growth of “only” 0.5% per annum, ceding its second rank as primary energy provider to natural gas.

Renewables experience the largest growth with 6.6% per annum, which brings their share in primary energy from today 3% to 9% in 2035.

BP has received heavy criticism for its Energy Outlook 2016. It was accused of speaking „pro domo“ in order to salvage its business model and that it was being cynical by assuming the failure of an agreement concluded by the political leaders of 195 countries.

I consider these criticisms against BP unfounded. Namely if one looks at the outlooks of e.g. the IEA (International Energy Agency) or the American EIA (Energy Information Administration), reputed institutes who clearly cannot be accused of economic self-interest, one encounters very similar projections and numbers, and that beyond the 2035 “midpoint” in BP’s outlook.

## The shortfall of the 2015 INDCs to reach the 2 degree target manifests the “affordable subsidies constraint”

The IEA’s „World Energy Outlook 2015“ („WEO 2015“), published in November 2015, reached similar conclusions as BP for the fuel mix in 2040 although it had, in its central „New Policies Scenario“, already included the INDCs of 150 participating states submitted in preparation for COP21.

The IEA openly concedes: „*The direction of travel is changing, but the destination is still not 2 degrees.*“ Hence, one could dismiss COP21 and the INDCs as political window-dressing. Some INDCs indeed only comprise (for a period up to 2050!) a few pages. If one, however, applied the benefit of the doubt and assumed that the respective authors did their math, one would have to appreciate the “shortfalls” of the collective INDCs as a reflection of the maximum limit of affordable subsidies: So long as renewables have not achieved market competitiveness, both technologically and cost-wise, their deployment requires subsidies, affordability of which presents the constraining factor.

The IEA discusses renewables’ market maturity along those lines. It notes e.g. that the increasing decarbonization in power generation does not progress in comparable fashion in other sectors. E.g. in the industrial sector or the transport sector this is technically considerably more difficult and cost intensive. The IEA assumes a cumulative investment in renewables up to 2040 of USD 7.1 trillion which is, however, only 15% of the total investments in global energy supply. In this context, the IEA discusses extensively the “milestones on the road to competitiveness for renewables.”

Hence, it is obvious that, in the face of the affordable subsidy constraint, further technological progress and degression of cost are required. The phased approach of COP21 does take this into account, one could even say it is counting on it.

## Excessive subsidies “picking (presumed) winners” are a fallacy in that they stifle innovation and achieve little

It is a favorable past-time of politicians and policy makers to “pick (presumed) winners” and lavishly dish out non technology-neutral subsidies in central-economy planning-style fashion. The „tunnel vision“ in power generation, e.g. in Germany, has created absurd results: Whilst the losses sustained from guaranteed above-market price feed-in tariffs, put on the bills of the end-users, exceeded € 24 billion in 2015, CO<sup>2</sup> emissions were rising.

The European Commission, in its heating and cooling market paper issued a few months ago, went as far as suggesting that, in the future, heating in the European Union would universally occur via electricity (naturally generated from renewables). Technical feasibility - transportation of electricity has a much lower energy density than for example natural gas - and economic sensibility - the electricity grids would at least have to be quadrupled at gigantic costs - are not discussed.

One can only hope that such idea, now also having arrived in Germany under the new buzzword „sector convergence“, for once be treated with measure: The focus should be on research and development as well as cost degression. It should by all means be avoided that, once more, developments are forced with a big bag of money before market competitiveness is reached.

As far as I can see, nobody has illustrated the fallacy of excessive renewables subsidies to curb climate change more brilliantly than Björn Lomborg. He e.g. calculates the effect of € 100 billion of solar subsidies till 2020 in Germany making a difference of 0.0001 degree Celsius and a delay in temperature breaching the 2 degree target of 37 hours in 2100. He observes: *“Madness is to keep doing the same thing over and over again but hope for different results.”*

### The obvious is being ignored

Hence, whilst one is, at least at the current state of technology, chasing utopian dreams, the obvious is being ignored: According to the „Roadmap“ of the European Commission the European market for natural gas is supposed to shrink from once ~ 550 bcm/a to ~ 300 bcm/a as early as 2025.

If we go on like this, it is entirely possible that this might happen. The European natural gas market has in the last couple of years lost ~60 bcm/a in power generation alone. Modern state-of-the-art gas-fired power plants became uneconomical and were mothballed. Not so with coal: Whilst the „clean spark spread“ was shrinking such that gas-fired power plants did not operate profitably even at short run marginal costs, the „clean dark spread“ was, despite the massive drop in wholesale traded market prices for electricity, economically feasible. I already mentioned the consequences: An increase in CO<sup>2</sup> emissions instead of reductions.

The list of fallacies on the road towards reduction of GHGs in order to achieve the 2 degree target is long. Equally long is the list of measures and proposals which could contribute to achieve the climate target, including controversial topics such as expansion of nuclear power or the application of CCS.

In the following I shall discuss a pragmatic (and effective) approach, which features natural gas as a „low hanging fruit“ on the road towards reducing GHGs. I am - of course – not claiming exclusivity for this approach, but would argue it is a significant aspect.

### A „Two-Phase“ approach: Prioritize high impact measures which are economically sensible and technically feasible

A “two-phase“ approach towards the target date in the year 2050 would incentivize the deployment of natural gas in phase 1 and could e.g. extend until 2040. As opposed to multiple „eager“ and erratic regulatory efforts, likely coupled with ever rising non technology-neutral subsidies, this would have various advantages.

The first – and in the context of COP21 most important - advantage would be that an expansion of the use of natural gas would achieve material and reliably calculable GHG reductions almost immediately. This is true for power generation (to the detriment of coal), for the heating market (mostly to the detriment of oil) and - within limits - also the transportation sector, where a significant effect in the area of maritime transport must be emphasized.

In the context of the “carbon budget” discussion, one could also say: If we have a budget to reach in 2050, we should use every opportunity to materially and immediately alleviate the ultimate budget burden now: by expanding the use of natural gas.

The second - and also important - advantage is investment certainty. If the industry can rely on a period of say 20+ years, one would be less concerned about “stranded assets” and actually indeed invest where necessary. This point is neither trivial nor theoretical: The European Commission, which is itself funding some 100 „projects of common interest“ for the completion of the single European market for natural gas (multiple interconnectors but also LNG regasification terminals), asked market participants in a recent consultation paper regarding the development of the LNG market whether they were concerned about stranded assets. A remarkably revealing “unease”, apparently stemming from the contradictory attitude which the European Commission has towards the product natural gas.

Third, the expanded deployment of natural gas would essentially work without subsidies. Hence, the approach would free up financial resources for research and development.

There is an important fourth (and only fourth because beyond the scope of this paper) advantage or rather benefit: the use of natural gas instead of coal, oil or solid fuels would have a tremendously positive effect on clean air.

#### Calling the market: Renewables competitive without subsidies

I realize that I, after having worked in the corporate oil and gas business for 33 years, might also be criticized as speaking „pro domo“. One might even accuse me of trying to “sneak in” a phase of 20 years of continued „business as usual“.

A closer look would render such criticism unfounded. As already mentioned, also COP21 stipulates an approach in phases, namely the “check-up” every five years at which the targets of the participating states are assessed and presumably adjusted if need be. These regular check-ups serve a double purpose:

First, they allow to assess whether the regulatory instruments and measures have rendered the right incentives and whether its effects are sufficient to achieve the GHG reductions to meet the 2 degree target. In my view, the price on carbon, introduction of which some 40 participating states, where not already existing, aim to implement, will play an increasingly important role.

Second, and correlated with the first aspect, the check-up enables to take full advantage of technological progress and - already now clearly visible - further cost depression of renewables, thus overcoming the affordable subsidies constraint.

In „phase 2“ of my proposal – possibly earlier, e.g. in the event of a “disruptive” technology break-through - it is entirely possible that for a major part if not all of the fossil fuels the „greatest possible incident“ occurs: Renewables have become so efficient and cost effective that they beat their fossil competitors by market prices entirely without subsidies. This is by no means utopia. Quite recently, the Dubai Electricity and Water Authority received, in the context of a tender for solar power projects, cost offers of less than 3 USDcts/kWh, i.e. significantly below the price for coal fired power generation (Financial Times, 26.07.2016). If one looks at the gigantic technological progress in the last decades, e.g. in the IT space or medical technology, one needs little fantasy to imagine what might still be possible.

### What is to be done?

The most effective and economically sensible way to expand the use of natural gas in „phase 1“ is the already mentioned introduction of a „price on carbon“, i.e. a sort of tax as e.g. in the UK or a cap and trade system with CO<sup>2</sup> emission certificates. This would achieve two things: First, the establishment of the „right“ merit order (i.e. one fostering the reduction of CO<sup>2</sup> emissions). Second, and frequently overlooked in the subsidy frenzy, it would lower the market entry barriers for renewables.

It is noteworthy that this approach is strongly supported by seven oil and gas companies, i.a. BP, Eni, Shell, Statoil and Total, and by no means limited to the power generation sector but universally for all CO<sup>2</sup> emissions, e.g. also in transport. Noteworthy because such an approach would, without doubt, raise the cost for the deployment of oil products, e.g. in transport and, once more, lower the entry barriers for renewables.

In my view this is not a „hidden agenda“ to save a business model, but rather the acknowledgment that the phased approach of COP21 will take this aspect increasingly into consideration anyways in order to achieve the 2 degree target. The – legitimate - purpose therefore appears to be planning security as to the costs to be expected for CO<sup>2</sup> emissions.

The European Union already has a „cap and trade“ emissions trading system, the so-called ETS. The surplus of emission certificates has however resulted in extremely low CO<sup>2</sup> prices such that it is incapable of achieving a merit order amongst fossil fuels which would optimally facilitate the reduction of GHGs. The attempts of the European Commission to improve this, e.g. by reduction of the amount of tradable certificates (the so-called „back-loading“) were feeble and also met resistance from „coal-intensive“ member states such as Germany and Poland.

If one were serious about a material reduction of GHGs in phase 1, one must revamp the ETS as soon as possible. Let's call it an advanced COP21 „check-up“ date: only if and when natural gas beats coal in the merit order, is the ETS operating “COP21-conform”.

### Is natural gas capable of living up to the task? Triple A once more: Accessibility, Abundance and Affordability

The latest insights in resource accessibility and availability as well as price development support this approach. Natural gas is indeed „accessible, abundant and affordable“, as a Shell/McKinsey study formulated it a few years ago. Not least the cost effective production of unconventional natural gas in the US (and potentially other countries, e.g. Argentina and China) has increased the reserves production ratio from once 60 years to more than 200 years. Noteworthy also the low break-even costs or, put differently, the resilience in the face of extremely low prices: The American Henry Hub price has for some time hovered around 2-3 \$/MMBtu (i.e. ~6-9 €/MWh), without causing a production decline as could be observed with shale oil at below ~50 \$/bbl.

Further, regarding „affordability“, one can observe that there is not (yet) a global traded gas price, however, the increase in flexible LNG has fostered a much stronger global price convergence (at a remarkably low level). The traded price for a „month-ahead“ product e.g. on the Dutch TTF is, with 11-12 €/MWh, already below the levels which were seen in the wake of the financial crisis in 2008/2009. In view of the global supply surplus this situation is likely to continue. One would therefore not have to be concerned about prohibitively large price increases for natural gas in the foreseeable future.

### Dependency concerns: The market can help to overcome reputational damage

A serious obstacle for the case of natural gas is the reputational damage it has sustained in Europe, not easily conceded but essentially always implicitly present, namely in discussions with political stakeholders. Such reputational damage stems from the misuse of natural gas as a political weapon, predominantly by Russia, lately however also by the European Commission. In my view this, at least partially, explains the contradictory attitude of the European Commission towards natural gas as e.g. the controversial discussions around Nordstream 2 once more demonstrate. The concern of perceived physical dependency and subsequent exposure to political blackmail cannot simply be dismissed: perception is reality.

In my opinion, the ones concerned with political blackmail can only be convinced otherwise by the market: In a well-interconnected “European Henry Hub“ (which to a large extent already exists) prices are not “dictated” but are formed by the mechanisms of supply and demand. We should also remember that Europe avails of redundant import capacities, namely more than 200 bcm/a of regasification capacity of which only ~25% has been utilized. This enables competition amongst suppliers. It is already apparent that LNG exporters from the US are about to instigate a price war against large pipeline suppliers.



The mission to overcome reputational damage would be accomplished if natural gas were perceived as just one other globally traded commodity such as e.g. crude.

Gas advocacy reloaded: gas should more assertively claim its place as part of the solution and... change thrust and scope of its argumentation

COP21 is, after all, a manifest of almost the entire world that we must take serious and decisive action to reduce GHGs in order to save the planet. In view of the insight that natural gas can make a material contribution to reduce GHGs whilst the affordable subsidies constraint exists, it appears appropriate to re-assess gas advocacy.

First and foremost, natural gas must more assertively claim its place as part of the solution; transitory assistance to intermittent renewables is fine but not enough. It can and must draw self-esteem from its enormous potential to immediately and materially reduce GHGs without a cent of subsidies and should also say so loud and clear.

Besides “renewables assistance”, there is a multitude of further reasons for natural gas to demand its place in the future energy mix for decades to come. The existing gas infrastructure already is and can increasingly more be utilized to feed in biogas, further hydrogen generated in „power-to-gas“ facilities. Hence, natural gas would also be beneficial way beyond „phase 1“.

Gas advocacy should in my opinion also re-engage assertively in asap revamping the ETS such that the merit order, e.g. in power generation, changes such that it favors gas to the detriment of coal. I was, for many years, myself opposed to „fuel bashing“ in the lobby- und gas advocacy work, e.g. in the board of Eurogas. Not least because, in sensitive areas such as e.g. the removal of energy poverty, the coal lobby uses the same arguments as they are used for natural gas. After COP21 I have come to the conclusion that such restraint is no longer appropriate. The issue is not market share or even “survival“ of the favored product, but rather to make a credible contribution towards a material and immediate reduction of GHGs which gas can achieve but coal cannot.

Gas advocacy should also be more outspoken, and possibly educational, about prices: The price formation of natural gas and also its (low) price levels as a consequence of supplier competition. As explained above, the inherent reputational damage can only be mended if one can convince those concerned with dependency and exposure to political blackmail that markets function and especially that security of supply has converged from a state of bilateral physical dependency towards a function of price signals. To say it bluntly: If “someone“ in the East closes a gas valve, traded prices will rise and attract other suppliers, e.g. flexible LNG from the US.

There is one further, delicate point which will be difficult to navigate: Since natural gas can materially reduce GHGs without subsidies and renewables, thus far, have only a limited effect on GHG reduction despite massive subsidies, the logical reaction should be for gas advocacy to attack subsidies for renewables and hence implicitly renewables

themselves. And indeed, if e.g. tenders which are now contemplated in Germany to curb the growth of too much further renewables generation capacity would allow gas to join in the competition, it would clearly win all the time. Given that gas advocacy has, for many years, offered itself as “assistant partner” of renewables, this is probably a hard call to make. In any event, a strong emphasis should be on being supportive of technology-neutral and opposed to non technology-neutral subsidies.

Will political stakeholders listen? At least there is now international achievement benchmarking.

The COP21 “check-ups” have introduced an additional aspect into stakeholder dialogue: namely that politicians might be keen to demonstrate internationally how much they already have achieved in terms of GHG reductions. One can only hope that the next check-up will generate sufficient political pressure to act pragmatically and implement feasible measures that have a material impact such as the proposed expansion of deploying natural gas.

Clearly, the expansion of the use of natural gas is, in this context, an obvious „low hanging fruit“.