

Energy Transition Monitor

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Biden's flying start on climate and energy policy

- ▶ **Up to USD 40 billion in fossil fuel subsidy to be drawn in**
- ▶ **From a climate change perspective it is good news and only the start, while from an energy markets perspective it may be too sudden**
- ▶ **Addition measures related to the pricing of carbon emissions, the form of which is not clear, are likely to follow**
- ▶ **Strong investments in renewable energy will lower the usage of fossil fuels in the energy mix**
- ▶ **Lower oil production could come with new local economic risks as well as geopolitical risks**
- ▶ **Less associated natural gas production could trigger a re-emerge of coal usage in power generation in a worst case scenario**

A new tone of voice

US President Joe Biden is wasting no time in keeping his climate promises. Within his first week the new tone of voice was clear. The Biden administration seems determined to change the climate and energy policy – if there was one – of his predecessor and replace it with ambitious plans to lower the US carbon emission substantially. We anticipated the return to the Paris Climate Agreement, stronger legislation for oil and gas exploration and the pause of leases for oil and gas production on federal land. In addition, Biden announced cutting fossil fuel subsidies, the purchase of thousands of electric vehicles by federal agencies, and the immediate block of the Keystone XL pipeline from Canada to the US. Measures to price carbon emissions are likely to follow.

From a climate perspective, this is a necessary course. As the second largest global emitter and historically the largest emitter, Carbon Action Tracker estimates a 70% reduction in US emissions by 2030 is needed to limit warming to 1.5°C by the end of this century. During the Trump presidency, the US took a completely different approach which hindered the local energy transition (at least from a federal perspective), and hardly contributed to the global climate policy actions. The new Biden administration shows that the US is back on climate policy. Moreover, they want to lead the world to a carbon neutral economy during the coming decades. From an energy perspective, some of the decisions seem bold and come with new risks. The effects of the heavy investments in renewable energy and decarbonisation of the transport sector may not materialise quickly enough to make up for the announced measures to fight the use of fossil fuels. Therefore, these measures may come with economic side effects in the short term, and could increase import dependency, unwanted shifts in the electricity mix, as well as new geopolitical risks. In this update, we will shed some light on both perspectives: the climate externality and the energy market impact.

America's climate externality

Climate change is essentially a very complex and all-encompassing externality problem, a known gremlin for economists. Externalities are costs and benefits not included in the market price of a good. Historically, externalities have been managed with subsidies and taxes. Positive externalities are subsidised, negative externalities are taxed. Subsidies granted to the fossil fuel industry were designed to lower the cost of fossil fuel production and incentivize new domestic energy sources and hence stimulate economic growth. The negative externality from fossil fuels – high CO₂ and methane emissions causing climate change have remained untaxed however, while US taxpayer dollars continued to fund outdated subsidies within the tax code. Cutting the subsidies is one step and correcting the full extent of the carbon “mis-pricing” is another.

Whether this will ultimately be fully implemented remains to be seen. Texas governor Abbott authorized state agencies to bring legal challenges to the announced policy in an attempt to protect the oil and gas industry in his state. Conservative estimates of direct US subsidies to the fossil fuel industry are roughly USD 20 billion per year¹ (20% to coal and 80% to natural gas and crude oil). Much less conservative, an International Monetary Fund (IMF) report included negative externalities and estimated US subsidisation to the fossil fuel industry at USD 649 billion per annum - more than Biden's USD 2 trillion spending plan over four years. Biden does not specify which subsidies could be stripped away under the order, given many of the industry's tax breaks are congressionally approved. He did refer to asking Congress to end the USD 40 billion in fossil fuel subsidies through legislation, suggesting it includes some direct but also indirect subsidies.

Direct Subsidies are special provisions in the US tax code designed to specifically support and reward domestic fossil fuel-related production, including:

- **Intangible Drilling Costs Deduction**, allowing tax deduction of a majority of the costs incurred from drilling new wells domestically.
- **Percentage Depletion**, an accounting method that works much like depreciation, allowing businesses to deduct a certain amount from their taxable income as a reflection of declining production from a reserve over time. Total deductions can exceed capital costs.
- **Credit for Clean Coal Investment Internal Revenue Code**. These subsidies create a series of tax credits for energy investments, particularly for coal.

Indirect subsidies are from provisions in the tax code aimed at businesses in general create that are not exclusive to the fossil fuels industry. Establishing an amount associated with these subsidies is more challenging, and includes:

- **Last In, First Out Accounting (LIFO)**, allowing oil and gas companies to sell the fuel most recently added to their reserves first, which allows the most expensive reserves to be sold first, reducing the value of their inventory for taxation purposes.
- **Foreign Tax Credit**, which allows firms operating in foreign countries to pay royalties abroad so they can deduct these expenses from their taxable income. Instead of claiming royalty payments as deductions, oil and gas companies are able to treat them as fully deductible foreign income tax.
- **Master Limited Partnerships**. Many oil and gas companies are structured as Master Limited Partnerships (MLPs). This structure combines the investment advantages of publicly traded corporations with the tax benefits of partnerships. While shareholders still pay personal income tax, the MLP itself is exempt from corporate income taxes. More than three-quarters of MLPs are fossil fuel companies. This provision is not available to renewable energy companies.

The discounted cost of leasing federal lands for fossil fuel extraction could be seen as another source of federal aid to the fossil fuel industry.

¹ EU subsidies are estimated to total 55 billion euros annually

Considering the much higher estimation of the IMF calculation including negative externalities, and Biden's determination to address the crisis, we can expect pricing of emissions in some form to follow. The two mechanisms mainly considered are carbon taxes or an Emissions Trading Scheme (ETS). Biden does not make clear proposals on pricing yet, and when considering what he is capable of following through with we understand why. Biden faces a catch-22 here.

A Congressional rule that allows fiscal measures to be passed with a simple senate majority would make a carbon tax technically feasible, but it would be politically unpalatable. Political aversion to taxes gave rise to the EU Emissions Trading Scheme (EU ETS) following some debate. With even more aversion in the US to taxes, they would likely create some equivalent to the EU ETS. An ETS probably could not be passed as a budgetary measure, since there is no revenue raising element to it (since emissions credits would initially be allocated to industry rather than sold).

Hence an ETS would be politically preferable, but has even less chance to get through Congress. Practically, centrist Democrats would make both a tax and an ETS harder. Democratic Senator Joe Manchin III of West Virginia has mentioned using the 'filibuster' where 60 senators can block legislation. Similar to previous years, he will block legislation to price CO₂ (federal CO₂ taxes or Emission Trading Schemes).

This creates scepticism on what Biden can do around carbon pricing, and an expectation that the emphasis will be on the 'carrot' rather than the 'stick' of decarbonisation, i.e. investment in renewables, and piecemeal measure like stopping this USD 40 billion in subsidies - which as pointed out, is tiny compared to the implicit subsidies estimated by the IMF. The sheer revenue potential for the US of the implicit subsidy, in particular considering the large budgetary strain the corona pandemic has and is still creating, may sway minds however. It may also be possible to get around with measures such as carbon credits which can be technically revenue raising.

While the market-driven reduction in emissions is expected to reduce the long term physical risk related to a changing climate, the shorter term transition risk is elevated, as the measures announced could potentially result in sudden transition risk through the impact it has on the energy market. This could have the unfortunate side effect of being drag on economic growth.

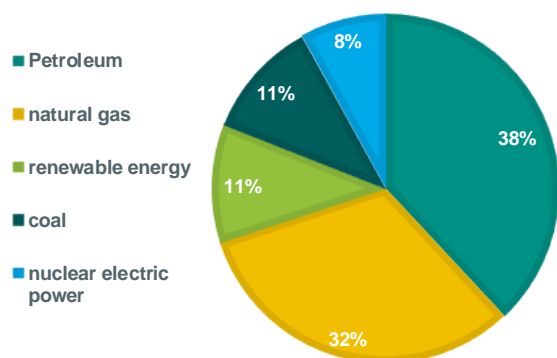
Policy changes around fossil fuel subsidies, taxes or credits will affect high fossil fuel states most, mainly Texas and Louisiana, where total emissions in 2018 were more than 1 Gigaton per annum, and small coal states Kentucky, West Virginia and Wyoming with CO₂/kwh intensity ratio at twice the US average. There is also of the risk that continued failure and political delay to reduce emissions leads to still more climate related legal cases, and increasing success of such cases. With emissions concentrated in a few US states – legislation against individual state may not be too farfetched. Hard caps on carbon emissions would result in even more sudden transition shock on the energy system and economic growth.

The impact on the US energy mix

The correlation between GDP and energy consumption has declined for several years. Due to higher energy efficiency, the decoupling of growth and consumption is expected to improve even further. Still, the US remains one of the most energy intensive countries in the world. To get to a carbon neutral economy, US energy efficiency improvements need to accelerate, and energy resources should be increasingly replaced by carbon neutral solutions. With the extensive investments the Biden Administration have announced, the build of more renewable energy – mainly used for power generation – will receive this extra boost.

US primary energy consumption by source

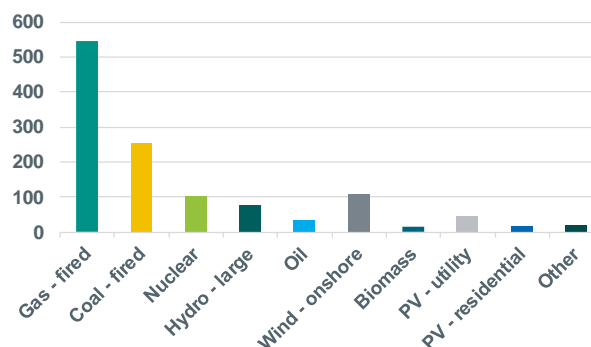
Total = 100.2 quadrillion BTU



Source: Energy Information Administration

US electricity mix

Installed capacity (GW)



Source: Bloomberg New Energy Finance

In the Energy Information Administration (EIA) 2020 reference case, the share of renewables in the electricity mix was already expected to double between 2020 and 2050. With the new announced investments, this growth will probably accelerate even faster. The US growth in renewable electricity generation comes mainly from solar and wind, as in most countries. The biggest drop is expected in the usage of coal and nuclear for power generation. The role for natural gas will remain important in the coming decades. The first few days in office shows that Biden also wants to speed up electric vehicle sales. Currently, there are less than 2 million electric vehicles in the US on a total of roughly 285 million cars (light vehicle, truck and SUV's). This implies that the need for gasoline and diesel will remain high for some years to come.

Oil supply and demand balance to shift

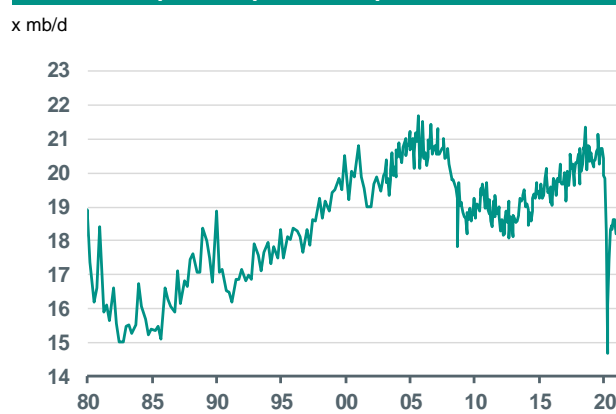
In 2020, we saw a strong decline in US consumption of petroleum products as well as US crude production. Whilst the effects of the coronavirus on US consumption is expected to be temporary, the impact on US crude production may be longer lasting. The drop in US consumption is mainly the result of local and international measures to fight the covid-19 virus (graph to the left below). Local lockdowns, lower exports and less aviation activity resulted in less demand for petroleum products. However, if measures prove successful and economies revive, demand for these products are also expected to recover and (almost) return to pre-corona levels. The strong investments in renewable energy to diversify the electricity mix are very ambitious, but they cannot outpace, or even meet, the speed of an energy demand recovery towards the pre-corona situation. This would result in a temporary gap, or "void" in the market.

The effects on US crude production may be even bigger (graph to the right below). The sector is already hit hard by low oil prices due to the fall-out of demand, the early 2020 price war between Saudi Arabia and Russia, as well as high cash flow needs to finance the continuous need for new exploration. With a more strict policy by the Biden Administration regarding subsidies, leases and legislation for the sector, the cost price for US oil production will most likely rise in the coming years. We therefore believe that the growth path we have seen in the previous decade for US (shale) oil production will not return. In fact, it will already be a challenge to keep production at current levels for longer, especially after the remaining 'drilled but uncompleted wells' have been brought in production.

If US crude consumption only shows a moderate decline in the coming years, while US production stabilizes or even declines as the cost price starts to rise, the dependency of US crude imports will increase once more, in turn increasing the risk of (exposure to) new geopolitical tensions. On top of that, it will likely increase the price of petroleum products

within the US. Not only because of higher taxation of petroleum products, but also because the price for the underlying commodities can rise. This can reduce the purchasing power of US citizens. We have seen in the past that US citizens don't like higher energy prices in general, and gasoline prices above USD 3/gallon in particular.

US consumption of petroleum products



Source: Bloomberg

US crude oil production



Source: Bloomberg

We don't expect the strong measures announced by Biden to have an immediate effect on the US oil prices. After all, there is enough spare production capacity available in the near term, especially as long as the average WTI price trade at or above USD 50/bbl. Also US crude inventories continue to hover around record high levels. It is important, though, that the Biden Administration keeps a close eye on their security of supply. From a climate perspective, there is a strong need for lowering the consumption of the petroleum products like gasoline, diesel and kerosene. But it is also important to maintain enough supply to meet the remaining demand. Pressuring oil producers with stronger legislation, less leases and lower subsidies, creates a risk that the drop in supply could outpace the needed decline in demand. That scenario would add economic risks. Not instead, but on top of, the climate risks.

The role of natural gas is controversial

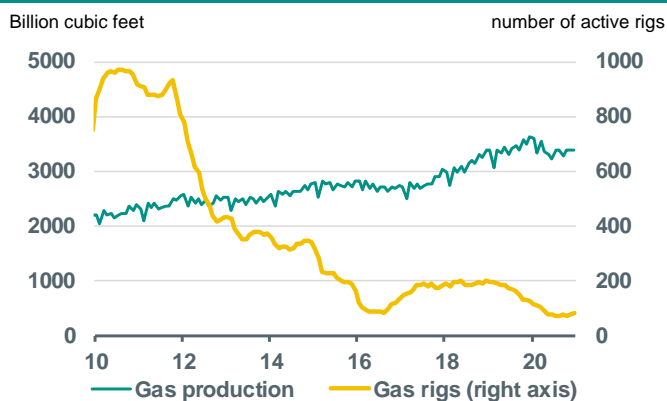
US demand for natural gas has been on the rise, especially for power generation. The low price for natural gas has been the main reason that the share of coal in the electricity mix has declined and that the share of natural gas has increased. As a result, the carbon emissions of the US power sector have dropped significantly. Natural gas will also continue to play an important role during the energy transition. Not only in order to phase out the remaining coal from the mix, but also as a backup for renewable energy.

One of the problems can be seen in the graph below. US natural gas production has stabilized during the past two years. However, the number of active gas rigs has already been very low for much longer. The main reason for this is that a large share of natural gas production comes in the form of associated gas with oil production. Stronger legislation restricting oil production 'flaring' (which essentially wastes the gas by-product) with have led to an effective capture of natural gas, and in recent years, producers have been able to make this process economically viable. As a result, the US produced so much natural gas that it has even started to export liquified natural gas (LNG).

An additional risk therefore of a stricter policy on oil production is lower natural gas – or associated gas – production. A higher market price for natural gas as a commodity could in this regard make production more economically viable. However, if natural gas production prices rises above the price for coal fired power generation, a policy aimed at lowering oil production could end up in triggering market forces which lowered emissions in recent years to revert to more usage

of coal in the electricity mix. So here, too, measures meant to reduce carbon emissions could have counter-productive side effects.

US gas production and the number of active gas rigs



Source: Bloomberg

Conclusion

'*Festina Lente*' is Greek for hurry slowly. The US needs to speed up the energy transition and invest heavily in its climate policy. However, it should not outpace itself by risking the energy security of supply by adding too much geopolitical risks and unacceptable consumer costs due to shortages in energy. While the reduction in subsidies for fossil fuel seems bold, we expect additional measures related to carbon pricing, further pressuring market dynamic between fossil fuel and renewable energy sources. It's like a tight rope walk between two sky-scrapers. The pole makes it look harder, but it is in fact crucial for balancing.

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