The Interplay Between Expectations and Climate Policy: Compensation for Stranded Assets

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See footnote at end of text.

Assets that unforeseeably become devalued or turn into a liability are referred to as stranded assets (Caldecott, Howarth and Mcsharry, 2013). In the environmental context, asset stranding results from climate-related physical changes and from measures to prevent such changes, i.e., climate policies. Both causes may lead to asset stranding on enormous scale: Stern estimates the costs of climate change to be as large as 5% of global GDP per year (Stern, 2007). Regarding policies, McGlade and Ekins assess that 80% of all coal reserves have to become stranded to reach the 2°C Paris goal (McGlade and Ekins, 2015). Asset stranding, however, does not solely affect the owners of fossil fuel companies or the carbon-intensive firms using those resources as inputs. If large amounts of fossil resources have to remain unburned, the assets of those companies may be heavily overvalued, creating a "carbon bubble" (Carbon Tracker Initiative, 2011). Therefore, any investor holding stocks or bonds of these companies is exposed to the risk of financial instability. Financial assets worth $2.5 trillion are estimated to be at risk of stranding, sufficient to cause systemic shocks on stock markets (Dietz et al., 2016). Regardless of whether or not climate policies are implemented to prevent climate change, assets will become stranded. The costs of climate change without any policy intervention, however, surmount the value of stranded assets resulting from a guided policy-driven fossil-fuel phase-out (Stern, 2007).

In this article, we discuss how climate policies lead to asset stranding and why this phenomenon might prevent the successful implementation of policies. One potential option to achieve a broad consensus over climate policies is to compensate those who lose out due to policy interventions. Taking recent German climate policy-making processes as an example, we argue that policy making and the socio-political environment may lead those losers to expect compensation. Once these expectations are in place, costly compensation may become necessary to avoid larger economic shocks.

Assets become stranded either directly or indirectly depending on the design of a climate policy. Compensation schemes are easier to implement with policies that strand the fossil fuel assets directly. Demand-side policies devalue assets indirectly. For example, implementing energy taxes or raising emission standards reduces the demand for fossil fuels. Likewise, a cap-and-trade mechanism limits the total level of emissions, thereby cutting down on fossil resource extraction. R&D subsidies or energy efficiency programs aim at boosting renewable energy-based technologies and reducing fossil fuel usage. Thus, they too strand fossil resources indirectly.

Regarding supply-side policies, the mechanisms of asset stranding are more diverse. Production bans or revoking production licenses strand fossil fuel reserves directly. Supply-sides taxes, such as production taxes, export taxes or taxes on fossil fuel capital lead to asset stranding indirectly. Implementing a cap-and-trade system for production rights limits fossil resource extraction but it does not specify directly which assets would become devalued. Trading fossil reserves on deposit markets stands as an efficient policy option (Harstad, 2012). On such deposit markets, economic agents trade the rights to exploit fossil resources, leaving both the total amount and the location of the assets to be stranded unspecified.

In addition to questions of economic efficiency, asset stranding will also have implications on the distribution of economic resources. Clearly, any downward revaluation of fossil fuel-related assets due to climate policy will not be distributed evenly across society. The impacts will be concentrated among those who own fossil fuel resources, or capital assets complementary to fossil fuels or cheap energy (including human capital).

While these effects are of interest in their own right, the distributional effects of climate policies and associated asset stranding may also hinder or prevent the implementation of the policies in the first place. Naturally, those sections of society, which expect to lose out from a policy change, will resist the implementation of such change – even if the policy improves overall efficiency.

In principle, policies could be designed to address such distributional effects, perhaps by coupling them with compensatory transfers. However, as climate change is a very long-run problem, the benefits – and thus the surplus out of which these transfers come from – from policies to tackle climate change arise only in the future, while the costs are incurred at the time of implementation. This delay, together with the inability of governments to commit to future policies to compensate any losers, means efficient policies may not be implemented (Besley and Coate, 1998). Furthermore, ambitious climate policies could well lead to large changes in economic structure. This changes the composition of vested interests, and thus may change the composition of political coalitions, or the

political preferences of these coalitions. As a result, future policymakers find it not in their interest to carry through with promised compensation. If interest groups today foresee this, they will not take promises of future benefits at face value. In other words, aggregate gains may be left on the table because of political resistance arising due to distributional concerns.

Policies to tackle climate change can also be persistent, sustaining themselves. This happens because economic agents – consumers, firms – will respond to policies, and these responses may strengthen their preference for the policy, creating policy lock-in (Coate and Morris, 1999). For example, the expectation of tighter climate policies can lead to the creation of vested interests in favor of such policies. A low-carbon industry can thus rise under the expectation of tight future policies; and once it exists, its political influence can sustain the implementation of these policies (Grey, 2018).

However, this persistence can also work in the opposite direction, in the case of policies intended to tackle the issue of stranded assets. As an analogy from trade policy, policies to protect declining industries from tightening international competition will also protect the political influence of these industries, so that costly protection is maintained for much longer than would be socially desirable (Brainard and Verdier, 1994). The lesson is that compensatory policies which seek to sustain the fossil sector's existence, rather than allowing it to contract but alleviating the economic pain of those affected by the transition, may lead to persistent political opposition.

All of the above mechanisms can prevent the implementation of policies to tackle climate change. The implication is that policy instruments should be designed to circumvent current political opposition, and to work dynamically to reduce opposition in the future (Acemoglu and Robinson, 2013). Next, we consider the case of the German coal phase out where the German government has sought to ameliorate concerns over distributional impacts of climate policies.

The German coal phase out is an interesting recent example of a regulatory climate policy (in the making) that leads to direct asset stranding. Anticipating the politico-economic difficulties of phasing out coal to reach its climate targets, the German government has set up a "Commission on Growth, Structural Change and Employment" to facilitate a broad societal consensus for the energy transition away from coal. The commission included representatives from different economic, environmental and social interest groups, such as representatives from mining regions, business, industry, environmental associations, trade unions, federal parliament and administration as well as scientists. After several months of intensive discussions, the commission published its final report in January 2019, recommending an end to coal-based power generation in Germany by 2038 (Federal Ministry for Economic Affairs and Energy (BMWi), 2019). Although only advisory, the report is expected to provide close guidance for the political decision-making process of the German government (Egenter and Wehrmann, 2019).

An important aspect of the report is that compensation payments for operators of plants and for employees are recommended to be settled in mutual agreement and the compensation funds should be provided through the federal budget. Support payments worth up to €40 billion are planned to strengthen the coal regions' infrastructure and to create jobs and investments in these regions. As a climate policy with very direct stranding of assets, the planned coal exit law, which is expected to contain a timetable for shutting down coal-fired power plants (Wehrmann and Wettengel, 2019), will likely be accompanied with compensation transfers (although the German parliament's research service concluded that the German state is not liable to compensate plant operators (Marschall, 2019). Through the early involvement of many relevant stakeholders in the commission, the economic risks of climate policies for companies and regions were part of the negotiations from the beginning. It is questionable if such strong commitments for compensation transfers for potentially stranded assets would have also been agreed on with less direct climate policies such as carbon pricing. For climate policies that cause asset stranding through indirect channels such as R&D subsidies for renewable energy, this would have been unlikely.

Although still in progress, the policy-making process in the case of the German coal phase out is an example where investors can expect at least partial compensation for stranded assets. The strong commitment to compensation in this case, however, has to be seen in context of the importance of the lignite industries in Eastern Germany, in regions that receive special political attention due to persistent economic weakness. This aspect significantly contributed to raising the political willingness to compensate for the directly regulated stranding of coal assets and may therefore be specific to this case.

Generally, in this example many parties are involved to find a broad consensus over how to achieve a fair transition. This process gives reasons for investors to form beliefs about potential compensation for asset stranding, and it raises the question of what investors expect regarding the stranded asset risk and compensation mechanisms.

In a recent paper, Sen and von Schickfus exploit the gradual development of a climate policy proposal in Germany, and infer investors' prior expectations by observing their stock market reactions to the amendments of the proposal (Sen and Schickfus, 2017). The proposal was first publicized in March 2015 as the "climate levy" (Klimabeitrag), which suggests charging power plants over 20 years old a fee on their CO_2 emissions.[1] The fee would be applied to emissions exceeding a certain threshold level, which was mainly

binding for lignite plants. Hence, the policy would have stranded considerable lignite capacity.

This "uncompensated policy" faced strong opposition. At the end of May 2015, the trade union for mining, chemicals, and energy (IG BCE) presented an alternative proposal. The IG BCE proposed a capacity reserve plan for old lignite units. The affected units would operate only in the case of supply shortages. In June, the federal coalition opted for the security reserve proposal with compensation for affected firms. This "compensated policy" would move 2.7 Gigawatts of lignite capacity into a security reserve, and pay €1.61 billion of compensation. However, there was a "challenge to the compensation". On August 14, Spiegel Online reported that the security reserve plans might fail based on an official report stating that the security reserve plan violates EU state aid rules. About one month later, the European Commission announced a state aid procedure, looking at such a potential violation.

Sen and von Schickfus investigate how the stock market reacted to the three stages of the proposal by focusing on the stocks of utility companies owning lignite assets, namely RWE and E.ON (Sen and Schickfus, 2017). Investors did not react to the announcement of the initial uncompensated policy, despite the fact that the climate levy would lead to substantial extra costs to these firms. The compensated policy did not lead to any reaction either. However, upon the announcement that the compensation might violate EU regulations, investors reacted sharply leading to over 20% loss in the value of RWE and E.ON. The evidence suggests that investors are aware of the stranded asset risk. However, as they did not react to the initial announcements of an ambitious climate policy, they seem to expect the affected firms to receive compensation.

Such expectations could result in carbon bubbles, if the expectations turn out to be incorrect. If expectations are not in line with the stranded asset risk, a sudden change in the stringency of climate policies can lead to abrupt changes in the value of fossil fuel assets. Energy companies are large and tightly linked to the rest of the economy. Hence, the stranding of assets can be a macro level risk. This situation can form beliefs that compensation payments are inevitable. This is a self-fulfilling prophecy: once expected, transfers may become necessary to avoid a bursting of the bubble. Early and credible commitment to climate policies, and clear signals on the principles by which compensation transfers are determined, are crucial to avoid such choices between systemic instability and costly compensation policies.

Footnote

[1] For more details see: Oei, P.-Y., Gerbaulet, C., Kemfert, C., Kunz, F., Reitz, F., and von Hirschhausen, C. (2015)."Effektive CO_2-Minderung im Stromsektor: Klima-, Preis- und Beschäftigungseffekte des Klimabeitrags und alternativer Instrumente." DIW Berlin: Politikberatung kompakt, 98.

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