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# The Implementing a Carbon Tax as a Means of Increasing Investment Value in Indonesia

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**Abstract:** The impact of a carbon tax in Indonesia, where it could lessen environmental changes, generate income economically, and raise the value of investments in renewable energy, is described and examined in this study. Doctrinal legal research is the research methodology used. To reach logical conclusions about legal issues, doctrine research is used. Research work can be made more qualified by using legal research. Carbon emissions in Indonesia have been significantly reduced by 13.917% due to the urgency of implementing a carbon tax, and worldwide carbon emissions have decreased by 14.292%. Investments in a mix of renewable energy sources gain value. The implementation of a carbon tax may need help. The political system and the administration of governmental institutions are barriers to implementing the carbon tax—the impact of the economy and business on public disapproval. The government sets revenue management by its objectives, the carbon tax policy is associated with an energy sustainability policy, and the coalition is tightened as part of the strategy to address these issues.

**Keywords:** Carbon; Investment; Indonesia; Tax;



## INTRODUCTION

The industrial revolution that took place in the 18th century had a significant impact on the transformation of the world economy. Extreme changes in technology, production methods, new ways of organizing production, and creating markets in Europe and the United States were responsible for the rapid economic escalation. Thanks to technological transformation and communication, goods became abundant, and trade grew as local production evolved into production between countries. As a result, almost all regions that experienced the industrial revolution saw increased per capita income and living standards. It must be recognized that the many advances of the industrial revolution caused some environmental problems, primarily the carbon emitted by the industry. This is a significant challenge for governments in many countries, as the need for development is a trade-off for producing greenhouse gases that contribute to global warming. In line with economic growth, increased economic activity is generally followed by increased greenhouse gas emissions.

Looking at the global scale of increasing CO gas emissions[2] that we can see in the results of the *Emissions Database for Global Atmospheric Research* report in 2021, the increase in gas emissions almost returned to the level of 2019, reaching 37.9 Gt (only 0.36% below the 2019 value). Compared to the 2020 pandemic year, global CO2 emissions in 2021 were 5.3% higher. As a carbon emitter, Indonesia produced lower

emissions in 2021 compared to 2019, with a reduction value from 2019-2021 of -6.9%, including the EU27 countries that reduce carbon emissions. Global per capita CO2 emissions have increased by about 13% from 4.26 t CO2/capita to 4.81 t CO2/capita between 1990 and 2021. However, the decrease in gas emissions must be accompanied by reducing fossil fuel use in Indonesia. This is because, according to research using the GAIN model to determine the level of contributors to gas emissions in Indonesia from 1990 to 2050, the increase in $CO^2$ emissions is dominated by coal fuel. Fuel demand for power plants in Java in 2003 reached 74% of the total national fuel demand, contributing the most carbon emission gases in Indonesia.

They are moving on from the estimated increase in gas emissions in Indonesia. Indonesia took action to reduce gas emissions by ratifying the Paris Agreement into a legal governing document in 2016 and committing to reduce emissions before 2030. Indonesia's emission reduction commitment in the Paris Agreement is 29 percent of its efforts and 41 percent. To demonstrate its commitment to reducing $CO^2$ emissions pollution, Indonesia adopted a new carbon energy policy, *tax* carbon. *Tax carbon* is a form of mandatory climate energy policy and a cap and trade system. *Tax carbon* allows the government to impose a tax corresponding to each fossil fuel's carbon content, such as coal, natural gas, and gasoline. *Tax carbon* differs from a *cap-and-trade* system in that it sets emission limits and distributes tradable permits according to the set emission limits. Meanwhile, a cap-and-trade system allows companies to decide how they value emissions. Companies that can reduce emissions in their production process can share their excess quota with competitors who cannot.

The carbon tax regulation in Indonesia has been regulated in Law Number 7 of 2021 concerning the Harmonization of Taxation. However, the widespread implementation of the *carbon tax will* begin in 2025, during which 2021-2024 is the time to establish the carbon tax mechanism. Indeed, taxing carbon is the most cost-efficient way to price the externalities associated with carbon emissions. Increasing the effective price of carbon will reduce emissions, inhibiting carbon growth in the atmosphere. At the same time, after a *carbon tax was* introduced in a country, foreign loans to fossil companies increased by 6.8 percent. At the same time, as domestic fossil lending decreased, overall fossil lending fell by about 0.4%. Regarding the prospect of the value of the contribution of *carbon taxes* to state revenues, we can see it in several countries, such as the Solomon Islands and China. The Solomon Islands, where environment-related taxes contributed 5.4% of gross domestic product (GDP) in 2019. In the study, implementing a *carbon tax* could generate additional revenue of about 0.8% of GDP, a significant but feasible fiscal effort within ten years. However, it limits global warming to 2°C. In July 2021, 4.1 million tons of carbon dioxide quota worth CNY210 million ($32 million)[1]

A look at the projected value of future investments that Indonesia can capitalize on. The scale of worldwide investment in the energy sector has doubled, reaching over 420 billion, with 70% of these funds allocated to renewable energy sources. To ensure long-term sustainability and meet the growing demand for energy at the household and industrial levels, it is estimated that a certain amount of annual

[1] ADB, *Carbon Pricing for Green Recovery and Growth*, 2021 https://doi.org/http://dx.doi.org/10.22617/TCS210403-2

investment is required.[2] The implementation of this *carbon tax* should be implemented immediately by the government. As many companies are investing in renewable energy simultaneously, the government must establish green financing and credit-related services for these groups and businesses. To answer these challenges, there is an urgency to implement a carbon tax in Indonesia.

## METHOD

This research uses doctrinal legal research methods. Doctrinal analysis is used to make logical conclusions about legal issues. Legal research helps make research work more qualified. This research proposal is descriptive. The primary data source is secondary information derived from the literature review. Using qualitative descriptive analysis, the collected data was examined. This research also relies on the legislation on *taxing carbon* in Indonesia. Other approaches, such as the statutory approach, were also used in collecting accurate data. The researchers conducted qualitative data analysis with legal document interpretation techniques during the literature study so that the results were presented analytically and critically.

## RESULT AND DISCUSSION

### *The Urgency of Tax Carbon Implementation as an Investment Value Enhancement Instrument*

Policies have important implications for economic and environmental performance, although the outcomes are not always clear. Unfortunately, this lack of clarity is partly due to the need for more analytical capability to evaluate economic or environmental performance in isolation, which fails to consider the extent to which financial and ecological outcomes are interrelated. *Tax carbon* is one of the categories of indirect taxes, which are taxes levied on transactions. The greater a company's dependence on producing a good using fossil fuels, the more significant the impact of imposing a *carbon tax*. If the company does not depend on fossil fuels to deliver goods, then the imposition of a *carbon tax has* less effect on the company's activities.

*Tax carbon* can be used as a potential policy as a new branch to attract investment into the country. To explore this potential, the government must synergize in making *tax carbon* and environmental regulations. This can be seen in the study of *tax carbon* in China, where environmental regulations significantly influence energy and heavy industries. CO2 emissions from these two industries in 2030 will decrease by 4.97% and 4.77% in the carbon emissions trading scenario and 6.01% and 5.83% in the *tax carbon* scenario. However, the carbon emissions trading policy outperforms the *tax carbon* policy because the carbon emissions trading policy will result in lower economic costs. However, for emission reduction, the carbon *tax* policy exceeds the carbon emission trading policy because the total emissions from 2020 to 2030 are the smallest in the *carbon tax* scenario. Therefore, policymakers should consider regional economic development plans to choose the proper environmental regulation.

Regulation on *carbon tax* in Indonesia should be implemented immediately. Reflecting on projections, implementing *carbon tax* policies mainly affects countries' export and import levels when they have a high proportion of carbon-intensive goods in their markets. The imposed *carbon tax* will increase the price of energy-intensive

[2] Michael Jefferson, 'A Crude Future? COVID-19s Challenges for Oil Demand, Supply and Prices', *Energy Research & Social Science*, 68 (2020), 101669 https://doi.org/10.1016/j.erss.2020.101669

goods and reduce the demand for energy-intensive goods in the domestic market. Carbon emissions drop significantly by 13.917%, and global carbon emissions drop by 14.292%. This scenario results in the most significant emission reduction of all systems. Implementing a domestic *carbon tax* policy in Indonesia reduces the production level of carbon-intensive goods in the country. Therefore, this policy can effectively mitigate domestic carbon emissions, however, when Indonesia imposes a *carbon tax of* $40/tCO2.

Regarding carbon tax regulation in Indonesia, it will use *caps and trade* in specific sectors such as coal, diesel, and gasoline. These are examples of fossil fuels that can be subject to a *carbon tax* in Indonesia. A *cap and trade* scheme means that entities that emit more than the maximum limit must purchase Emission Permit Certificates from entities that emit below the maximum limit or purchase Emission Reduction Certificates. The carbon price level is planned to be higher or at least equal to the carbon price in the carbon market, which has a minimum IDR 30 per kilogram of carbon dioxide equivalent. Implementing a *carbon tax* in Indonesia must maintain the carbon market so that it is not exploited by industrialized countries that emit carbon. Also, the government should remember that fossil fuels are still produced cheaply in Indonesia, even though they are expensive. In addition, Indonesia still relies up to 90% on fossil fuels for its electricity, so implementing a *carbon tax* must be carefully planned.[3]

Carbon tax implementation already has a regulatory framework through Law 7 of 2021 on Harmonization of Taxation and Law 32 of 2009 and its derivative regulations. In the Taxation Harmonization Act, a carbon tax is regulated in Chapter IV Article 13, which contains the subject of a carbon tax to the tariff that governs it. In addition, based on Article 49 (3) of Law Number 32 of 2009 concerning Environmental Protection and Management, environmental audits of certain high-risk activities are implemented periodically. An environmental audit is an evaluation carried out to assess the compliance of the person in charge of the business and training with the legal and policy requirements set by the government, which will collaborate with stakeholders from the Ministry of Finance through the Financial Services Authority (OJK) Regulation Number 51/POJK.03/2017 OJK can be involved in monitoring the amount of carbon emissions generated by the company to confirm the reliability of the company's sustainability report. This is also regulated more technically in Presidential Regulation No. 98 of 2021, aimed at CPI: ETS, RBP, *carbon tax*, and other mechanisms based on technological and technical developments. While emissions trading will be mandatory, the other four will be voluntary.[4]

Moving towards the implementation of carbon permits will force polluters to be more efficient and reduce their carbon emissions. If there is no reduction in carbon emissions, the government could receive revenue of IDR 115,646,647 million at the 29 percent reduction target level. The tax revenue would be more significant if the

[3] I Gusti Putu Eka Rustiana Dewi and Ni Made Sintya Surya Dewi, 'Analysis the Effectiveness of Implementation Carbon Tax in Indonesia', *Jurnal Economina*, 1.4 (2022), 880–89 https://doi.org/10.55681/economina.v1i4.194

[4] Pradipta Dirgantara, 'Reflecting on REDD+: Challenges Towards Indonesia's Carbon Pricing', *IOP Conference Series: Earth and Environmental Science*, 1105.1 (2022) https://doi.org/10.1088/1755-1315/1105/1/012003

emission reduction target were 41 percent. The tax revenue would be around IDR 145,396,856 million. Carbon permits are similar to carbon *taxes*, but carbon permits limit the carbon emissions allowed in the form of certificates. The provisions must execute certificates purchased by polluters. Emissions that exceed the permitted limit will be subject to heavy fines.

For a quick look at the impact of implementing a *carbon tax* policy that estimates future changes in natural gas capacity, a carbon tax of $10 would reduce carbon emissions by 1.39 and 1.55 billion metric tons per year through increased utilization of NGCC. In addition, the relatively low carbon tax price of only $10/ton would be more politically feasible and still generate significant net carbon tax revenue for the federal government.[5] Moving on from the explanation above, implementing *carbon tax* should be immediately implemented in Indonesia. The investment value and state revenue that Indonesia will obtain must be optimized directly. The optimization of *carbon tax* must be carried out gradually, which for now is still postponed.

### *Challenges and Strategies for Tax Carbon Implementation in Indonesia*

Regarding the challenges of *carbon tax* implementation, we must reflect on several countries that have implemented a *carbon tax. The carbon tax* policy can be found in Chile. Chile applies a CO2 emission tax of US$5 per ton, which will increase over time to US$50. The impact felt by Chile is projected to reduce almost 0.6% of GDP in 2050 compared to the baseline and reduce total consumption and investment. This is due to the increased cost of carbon-intensive activities, which are a crucial driver of economic activity in Chile. As fossil fuel costs increase and alternative energy sources become more attractive in terms of price, economic actors, especially larger ones, choose to reduce their production or shift to cleaner inputs. This shift can be relatively costly in adapting their business to the new energy model, which quickly increases the cost of structural change. As production becomes more expensive, exports become less competitive and fall relative to the starting point in energy-intensive sectors.

This leads to a favorable exchange rate increase for export sectors whose production costs are less affected by the tax.[6] We can see that Chile is a country that is not a developing country. Regarding implementing a *carbon tax* in Indonesia, several factors must be addressed for its performance[7] Political System and Governance of Government Institutions. Poorly managed government institutions may also challenge Indonesia's carbon tax policy implementation process. This is due to Indonesia's political system, where policymakers are involved in business, suggesting that the involvement of business people in the political system and the large number of parliamentarians who own businesses could pose challenges to implementing a carbon tax policy in Indonesia. Challenges to implementing the carbon tax policy also come

[5] Deborah A. Carroll and Kelly A. Stevens, 'The Short-Term Impact on Emissions and Federal Tax Revenue of a Carbon Tax in the U.S. Electricity Sector', *Energy Policy*, 158.August (2021), 112526 https://doi.org/10.1016/j.enpol.2021.112526

[6] Raúl O´Ryan, Shahriyar Nasirov, and Hector Osorio, 'Assessment of the Potential Impacts of a Carbon Tax in Chile Using Dynamic CGE Model', *Journal of Cleaner Production*, 403.February (2023), 136694 https://doi.org/10.1016/j.jclepro.2023.136694

[7] Alexander Kevin Tjoanto and Maria Tambunan, 'Tantangan Dan Strategi Dalam Proses Implementasi Kebijakan Pajak Karbon', *Jurnal Riset Akuntansi & Perpajakan (JRAP)*, 9.02 (2022), 237–48 https://doi.org/10.35838/jrap.2022.009.02.20

from the attitude of Indonesian politicians who wait and see how the public perceives carbon tax. Hence, the procedure takes a long time to implement.

Economic and Business Influences. This challenge arises due to the negative effect of the carbon tax, which can be seen from the simulation results conducted by the government during the preparation of the carbon tax policy draft academy paper. The simulation results show that a carbon tax could cause actual consumption to decline by 0.417% in 2022, and the decline could be even more significant in 2030 to 1.97%. Public Rejection  The emergence of public rejection of the carbon tax in Indonesia can also be caused by a lack of public trust in the government's ability to manage revenue from the carbon tax. Trust in the government is also a problem because people doubt that the income earned by the government is not in line with its goal, which is to reduce emissions by the Paris Agreement that Indonesia has committed to.

The challenges faced by Indonesia in implementing the *carbon tax can* be seen in the government system and trust in it.  The government system and trust are basic units to implement the policy, in line with previous research where high public trust in the political system and government can increase public acceptance of carbon tax policy implementation. In contrast, low government trust can cause difficulties in carbon tax policy implementation. This is in line with comparing *carbon tax* implementation in 3 countries, namely France, Sweden, and Canada. The government system must be robust to lobby fossil energy users. From these three countries, it is essential to consider the existence of energy lobbyists in designing carbon tax policies. If they do not consider energy lobbyists, there is pressure from entrepreneurs from large energy user companies. These entrepreneurs helped create exemptions to the carbon tax for some energy-intensive industries, arguing that the tax would jeopardize their competitive position.[8]

The challenge also comes with implementing a carbon tax, which is the transition from the energy that Indonesia is currently undertaking. It should be noted that people's income is directly proportional to fuel consumption, reflecting the UK household income, which tends to have a positive relationship with gasoline consumption. At a household income of $70,000, our results show that an increase in household income of $10,000 will increase gasoline consumption by 1.7%. This effect diminishes as income increases. For example, at a household income of $500,000, a $10,000 increase in household income would increase gasoline consumption by 1.4%. The UK's introduction of the *carbon tax* also increased fuel prices, which resulted in a 1.6% reduction in gasoline consumption. This implies that a carbon tax of five percent per liter of gasoline reduces total gasoline demand by 8%. [9]

Moving away from household income, the application of *carbon tax* also targets more complex public transportation, most of which still uses fossil fuels. According to previous research, the carbon tax on vehicles is considered unfair to people with

[8] Patrick Criqui, Mark Jaccard, and Thomas Sterner, 'Carbon Taxation: A Tale of Three Countries', *Sustainability (Switzerland)*, 11.22 (2019) https://doi.org/10.3390/su11226280

[9] Chad Lawley and Vincent Thivierge, 'Refining the Evidence: British Columbia's Carbon Tax and Household Gasoline Consumption', *Energy Journal*, 39.2 (2018), 35–61 https://doi.org/10.5547/01956574.39.2.claw

limited cars and economic circumstances. An increase in power will lead to a rise in public transportation prices. So a combination of taxes and compensation schemes or subsidies can successfully increase public support for practical climate policy tools. The reason for drawing this conclusion is that compensation or contributions significantly positively influence equity, which in turn will affect policy support in a positive direction. On the other hand, in a more left-oriented context, the results of this study imply that a CO2 tax without compensation is more likely to generate slightly higher support.[10]

Not only that, the challenge experienced by Indonesia when implementing a *carbon* tax is the distrust of the public and stakeholders towards the *revenue* obtained by the government, which impacts public trust. This public trust is related to the fiscal payment received by the state, which is how the government manages carbon tax revenue and is an essential factor that can affect public acceptance of carbon tax policies. Environmental payments can be allocated to projects that reduce carbon emissions or fund low-carbon energy sources, such as financing renewable energy research and development, technological innovation, and energy efficiency. Therefore, to assist policymakers in drafting new policies or evaluating existing carbon tax policies. The public's willingness to pay a carbon tax is strongly influenced by the government's choice of how to spend carbon revenues.[11]

Despite the many challenges faced by Indonesia in implementing a carbon tax, there are strategies to deal with these challenges. Some methods to deal with the *carbon tax* policy in Indonesia are improving the political system by strengthening the coalition. The main problem with implementing the *carbon tax* from the government's perspective is the need for more political support for the performance of the *carbon tax* policy. This is one of the challenges that plague the policy formulation of a *carbon tax*. Three main aspects identified as political challenges from the interviews will be analyzed here: institutional resistance, business influence, and political conflicts of interest. There is a gradual implementation of a carbon tax policy in Indonesia to deal with these political problems. There needs to be a gradual implementation of which sectors first apply *carbon tax*. The government must immediately compile industrial industries that use fossil fuels. According to the author, the application to PLTU had become the right step because, before COVID-19 in 2019, more than 90% of Indonesia's primary energy needs were supplied from fossil fuels. Renewable energy only accounts for about 8% of the total energy supply mix.[12]

In addition, the government must conduct a policy evaluation to determine whether the policy is effective. After that, the government, in the course of implementing the *carbon tax*, must gradually increase the tariff of the *carbon tax*. It should be noted that the carbon tax rate in Indonesia is around IDR 30.00 per

[10] Sverker C. Jagers, Johan Martinsson, and Simon Matti, 'The Impact of Compensatory Measures on Public Support for Carbon Taxation: An Experimental Study in Sweden', *Climate Policy*, 19.2 (2019), 147–60 https://doi.org/10.1080/14693062.2018.1470963

[11] Lee Ann Steenkamp, 'A Classification Framework for Carbon Tax Revenue Use', *Climate Policy*, 21.7 (2021), 897–911 https://doi.org/10.1080/14693062.2021.1946381

[12] Elisa Wahyuni, 'Challenges Facing Indonesia's Energy Commitment', *Indonesia Post-Pandemic Outlook: Strategy towards Net-Zero Emissions by 2060 from the Renewables and Carbon-Neutral Energy Perspectives*, 2022, 2022, 23–40 https://doi.org/10.55981/brin.562.c3

kilogram of carbon dioxide equivalent (COze) or an identical unit by Law Number 7 of 2021 concerning the Harmonization of Taxation. The government must carry out this rate adjustment because, according to studies on environmental tariffs, green tax rates need to be higher to reduce emissions can result in companies paying it as part of their business obligations without increasing control over emissions management. Examples of countries that have gradually increased carbon taxes are Canada and Chile.[13]

The Government Defines Revenue Management by its Objectives. It should be noted that implementing the *tax carbon* policy in Indonesia has an impact, namely economic contraction, such as sectoral output, aggregate demand, and household welfare. To curb these adverse effects, it can be addressed by the compensation (revenue) scenario chosen. Among other methods, carbon tax compensation with labor (income) tax reduction is likely the most favorable scheme, where double benefits will be obtained. The increase in fuel price is offset by the rise in household income through the reduction in income tax. This will therefore induce higher domestic demand due to increased disposable income, increasing aggregate output. The impact on household welfare is minimal (neutral) in rural and urban areas, and inequality remains unchanged. In the scenario of income recycling through increased government spending, the results show that GDP at factor costs declines slightly, but GDP at market prices increases.[14]

The management of *carbon tax* revenues must be appropriately managed by giving them to crucial government expenditure posts. Raising the *carbon tax* correlates with poverty because it can simultaneously reduce poverty, especially for children. However, the reform will likely increase the official measure of energy poverty. We will now look at the distributional impact of the reforms discussed above. [15] Revenue management must be accompanied by strict supervision from the government. Proper revenue management will minimize the negative impact caused by the energy transition. It should be noted that implementing the *carbon tax*, which has raised concerns from some parties, will cause a decrease in GDP. According to previous studies, the decline in GDP does not affect the country. Carbon tax revenues can be recycled into additional investments in all sectors to secure GDP gains. In addition, a carbon tax should be implemented to change the environment since carbon tax revenue does not correlate with a noticeable increase in GDP. Investments made by the government to create clean energy become cheaper for end-users due to lower per-unit costs, and therefore, more clean energy is used. Therefore, investment in the

[13] Jian Wu and Alon Tal, 'From Pollution Charge to Environmental Protection Tax: A Comparative Analysis of the Potential and Limitations of China's New Environmental Policy Initiative', *Journal of Comparative Policy Analysis: Research and Practice*, 20.2 (2018), 223–36 https://doi.org/10.1080/13876988.2017.1361597

[14] Herbert Wibert Victor Hasudungan, 'The Impacts of Implementing the Carbon Tax on Fossil Fuels: A Hybrid Cge Analysis for Indonesia', *Scientific Contributions Oil and Gas*, 40.2 (2018), 91–105 https://doi.org/10.29017/scog.40.2.44

[15] Seamus O'Malley, Barra Roantree, and John Curtis, *Carbon Taxes, Poverty and Compensation Options* (Dublin, Ireland, 13 October 2020) https://doi.org/10.26504/sustat98

clean energy sector is only beneficial in terms of climate change mitigation rather than in terms of GDP or income distribution.[16]

*Carbon tax* policy is associated with an energy sustainability policy. *The carbon tax* policy should be combined with the government's energy sustainability policy. The fact that reflecting on other countries shows that experience of various countries shows that carbon tax policies are seen as part of a mitigation portfolio rather than the first best policy option. In addition, Haites explained that almost every region that imposes a carbon tax also implements other policies, such as emissions trading, to reduce greenhouse gas emissions. However, Haites emphasized that implementing multiple policies can increase compliance costs and create complex interactions and distributional effects. Some examples of measures that can be combined with carbon tax measures are additional tariff measures or initiatives to invest in renewable energy development in the power sector and public investment measures in public transit to reduce demand for private vehicle fuels.[17]

## CONCLUSION

By the explanation above, it can be concluded that the application of *tax carbon has* a positive impact on the value of revenue and the value of an investment in the energy mix in Indonesia to create a new atmosphere in increasing the value of an investment in Indonesia, especially investment in renewable energy which has a domino effect on industrial fields using fossil fuels which aim to reduce the weight of gas emissions in Indonesia which directly protects climate sustainability. One of Indonesia's commitments to the agreed Paris Agreement is implementing a carbon tax. The existence of a *carbon tax impacts* the revenue earned by Indonesia, which can affect the energy revolution in Indonesia in the energy mix sector. In implementing carbon *tax* policy in Indonesia, several challenges hinder the implementation of the carbon tax, such as unsynchronized political support, rejected by the community because it can harm labor-intensive industries that use fossil fuels and many politicians who get into the business which sometimes the company carried out by politicians is affected by the policy that rejects the implementation of the carbon tax policy. However, there are strategies to deal with the many obstacles by creating coalitions between politicians, improving revenue management, and including *carbon tax* as a regulation related to the energy revolution or energy mix.

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