

# A Guide to Carbon Pricing and Fossil Fuel Subsidy Reform

A SUMMARY FOR POLICYMAKERS

## A Guide to Carbon Pricing and Fossil Fuel Subsidy Reform:

A SUMMARY FOR POLICYMAKERS

Copyright ©UNDP 2021. All rights reserved. One United Nations Plaza, NEW YORK, NY10017, USA

The views expressed in this publication are those of the author(s) and do not necessarily represent those of the United Nations, including UNDP, or the UN Member States.

#### TABLE OF CONTENTS

Acknowledgements	4
Foreword	6
Key messages	8
Introduction	9
The critical role of carbon pricing	12
Overview of recent energy pricing reforms	14
Choosing a carbon pricing instrument	16
Carbon pricing design and implementation	23
Key carbon pricing reform priorities	28
Ensuring socially equitable reform outcomes	34
Strengthening international policy coordination	41
The role of international organizations	46
Conclusions	47
References	49
Glossary of key terms	53
Glossary of acronyms	54

#### FIGURES

Figure 1.	Mitigation costs in the electricity sector by policy instrument	12
Figure 2.	Fiscal revenues from energy subsidy reform in 2018 in millions of US\$ and % GDP, selected countries	13
Figure 3.	Overview of national emissions pricing (in 2019) and energy subsidy reforms, 2015–2017	14
Figure 4.	Carbon prices and GHG coverage by Chinese province ETS, 2018	20
Figure 5.	Summary of carbon pricing policy gaps and reform steps	28
Figure 6.	Carbon prices in 2018, selected countries	29
Figure 7.	Scope of carbon pricing schemes in 2018, selected countries	30
Figure 8.	Effective carbon pricing gap at $\in$ 30tCO <sub>2</sub> in 2015, selected developing countries	30
Figure 9.	Allocation of global revenues from carbon taxes and ETSs, by expenditure category	31
Figure 10.	Impact of $\in$ 50 tCO <sub>2</sub> ETS price on the distribution of EU steel production costs in 2030	32
Figure 11.	Optimal second-best tax rates on coal and gasoline in 2015, selected emerging economies	32
Figure 12.	Welfare losses from \$0.25/litre gasoline tax, selected LAC countries	35
Figure 13.	Key policy steps and decision-making factors	38
Figure 14.	Effective carbon prices in 2030, selected countries	41
Figure 15.	Options for driving international carbon financing flows	42
Figure 16.	CDM credit supplies and prices, 2005–2019.	43
Figure 17.	Key capacity gaps impacting carbon pricing in developing countries	44

#### **TABLES**

Table 1.	Summary features of different mitigation policy instruments	16
Table 2.	Evaluating explicit carbon pricing policies by selected criteria	18
Table 3.	Country-specific characteristics that impact carbon pricing choices	22
Table 4.	Summary features of compensation options	36

#### BOXES

Box 1.	Defining energy subsidies	13
Box 2.	What is an ETS?	17
Box 3.	"FASTER" principles for carbon pricing policy choice and implementation	18
Box 4.	Lessons from ETS pilots in China	20
Box 5.	Piloting an ETS: key policy steps and decision factors	23
Box 6.	Implementing a carbon tax: key policy design considerations	25
Box 7.	Summary of policy recommendations I	26
Box 8.	Summary of policy recommendations II	33
Box 9.	Analysing the distributional impacts of energy pricing reforms using household expenditure data	35
Box 10.	Overview of the Tayssir Conditional Cash Transfer programme in Morocco	36
Box 11.	Energy subsidy reform in Jordan: a staged approach	37
Box 12.	Reforming LPG subsidies in India	37
Box 13.	New Zealand Emissions Trading Working Group	39
Box 14.	Summary of policy recommendations III	39
Box 15.	Measuring and comparing effective emissions prices	42
Box 16.	Article 6, internationalizing carbon markets and lessons from the Clean Development Mechanism	43
Box 17.	Overview of the PMR	44
Box 18.	Summary of policy recommendations IV	45

#### **ACKNOWLEDGEMENTS**

This report was co-authored by Marcel Alers, Head of Energy, UNDP and Dr. Ben-jamin Jones, Associate Professor (Honorary), Bartlett School, University College London, in 2020 with support from the Energy team at UNDP.

We would like to thank the following people for their contributions to the peer-re-view process: Kehan He (University College London), Philip Gass (IISD), Cameron Hepburn (University of Oxford), Thomas Kansy (Vivideconomics), Linus Mattauch (University of Oxford), Ian Parry (International Monetary Fund - IMF), Pascal Saint-Amans (OECD), Baoping Shang (IMF), Kurt Vandenberg (OECD), Venkata Ramana Putti (World Bank), et al.

This report is part of UNDP's *Don't Choose Extinction* campaign. Find out more on: DontChooseExtinction.com

Thank you to our core partners: Germany, United States, Japan, United Kingdom, Sweden, Norway, Switzerland, Canada, Denmark, Netherlands, Belgium, France, Australia, Ireland, Qatar, Republic of Korea, Italy, New Zealand, India, China, Luxembourg, Finlan, Saudi Arabia, Turkey, Austria, Russian Federation, Thailand, Bangladesh, United Arab Emirates, Kuwait, Singapore, Estonia, Czech Republic, Israel, Iceland, Indonesia, Portugal, Liechtenstein, Mongolia, Latvia, Andorra, Cambodia, Iran, Pakistan, Cuba, Antigua and Barbuda, Philippines, Myanmar, Albania.



## FOREWORD

The science is clear: climate change is already here. It is taking place in every corner of the globe. It is happening faster than ever and now intensifying. Our changing climate, which poses an existential threat, is primarily caused by our continued use of fossil fuels. Yet, the fossil fuel industry benefits from subsidies of \$11 million every minute which is fueling our climate crisis. Indeed, exposure to air pollution is estimated to cause seven million premature deaths every year.

At the same time, our path out of this crisis is equally clear. To limit the global temperature rise to 1.5 degrees Celsius, emissions need to fall by 7.6 per cent every year between now and 2030. This translates to an annual six per cent decrease in energy production from fossil fuels. An intrinsic part of this process is for Governments to directly address the current mispricing of fossil fuel-based energy that entire economies are built on. That starts with phasing out fossil fuel subsidies and putting a price on carbon.

Global shifts in carbon pricing and fossil fuel subsidy reform are gathering pace. Countries, including Morocco and India, have taken steps to reform these subsidies while major-emitter countries in the G7 and G20 have made commitments to phase out fossil fuel subsidies. More than 60 carbon pricing initiatives have been implemented across the world. Indeed, 96 of the 146 Nationally Determined Contributions refer to carbon pricing as a "policy option".

Yet such is the extent of our climate crisis, Governments need to rapidly accelerate their decarbonisation and drive forward a clean energy transition. Drawing on existing literature and case studies, *A Guide to Carbon Pricing and Fossil Fuel Subsidy Reform: A Summary for Policymakers* aims to provide decisionmakers with new insights and guidance on how to implement successful energy pricing reform in three steps: 1) phasing out fossil fuel subsidies; 2) putting a price on carbon; and 3) reallocating these resources towards the achievement of the Sustainable Development Goals (SDGs).

The report highlights the pros and cons of existing tools in relation to specific economic and social contexts—drawing lessons from emissions trading pilot schemes in China, for instance. Using a macroeconomic lens, the report also demonstrates how multilateralism will be pivotal to bolster global, collective action towards fair and effective carbon pricing mechanisms. Indeed, the report complements the ambitious objectives set out in the new Global Roadmap on clean energy that stemmed from the 2021 High-Level Dialogue on Energy. For instance, it calls for a shifting of fossil fuel subsidies to renewable energy investments, while creating new green, decent and healthy jobs to secure a just and inclusive transition.

As some countries start to build forward better from the COVID-19 pandemic, we cannot go back to business-as-usual as our continued dependence on fossil fuels is precipitating the decline of both people and planet.

The United Nations Development Programme (UNDP) will continue to offer support to countries and policymakers as they design and implement the energy pricing reforms that will lay the foundations of the green economies of the future. Complementing these efforts, UNDP has made an ambitious commitment to work with our partners to provide 500 million additional people with access to clean and affordable energy by 2025.

With the SDGs serving as our collective North Star, the entire UN family and our partners will be on hand to help countries and communities to plot a course out of this crisis -- towards that greener, more inclusive, and more sustainable future.



Achim Steiner Administrator, United Nations Development Programme (UNDP) Co-Chair, UN-Energy

References IMF, 2021 World Health Organization, 2018 United Nations Secretary-General Statement, End Fossil Fuel Subsidies, Bolster Funding for Renewable Energy Particularly in Africa, Secretary-General Tells Round Table on Clean Power Transition, 2021 OECD, IEA, 2021

## KEY MESSAGES

- Carbon pricing is key to reducing emissions and delivering the nationally determined contributions (NDCs) cost-effectively, and could mobilize hundreds of billions, even trillions, of dollars in additional revenues annually. This report provides a comprehensive analysis of existing carbon pricing tools, and aims to help policymakers decide which carbon pricing policies will be the most adapted to their national contexts. It shows that the effectiveness of carbon pricing mechanisms is optimal when combined with fossil fuel subsidy reform.
- Policy options for imposing an explicit carbon price include a tax, an emissions trading system (ETS) or measures combining features of both. Taxes can be levied on energy production, consumption or trade, for example. Alternatively, policy makers can control the volume of emissions under an ETS. Finally, so-called "hybrid" measures combine facets of both these policies by setting a cap on emissions but, for example, limiting the range within which prices can fluctuate.
- Carbon pricing measures aim to increase the cost of polluting fuels and technologies. But if misplanned or misdesigned, carbon taxes can lead to civil unrest. This was the case in France, where the introduction of a carbon component into the fuel tax in 2014 led to a price rise in 2018 which triggered the mass protest movement of the Gilets Jaunes (Yellow Vests), partly because the price rise incurred by the tax was going to disproportionately affect lower middle class and working class households who are heavily reliant on cars.
- Carbon pricing measures are not only effective in terms of greenhouse gas emissions reductions. They also present unique revenue raising opportunities. Unlike other policy instruments to reduce greenhouse gas emissions, such as, energy efficiency regulations or subsidies for low carbon technologies, carbon pricing has the potential to mobilize hundreds of billions, even trillions, of USD in additional fiscal revenues annually which could help support the Sustainable Development Goals (SDGs). Positive carbon pricing also presents substantial revenue opportunities. Overall, these could address often chronic funding issues faced by many developing country governments.

### 预览已结束, 完整报告链接和二维码如下:



https://www.yunbaogao.cn/report/index/report?reportId=5 11444