The Paris Agreement’s Article 6
Estimating its potential to increase ambition

03 December 2019
The Paris Agreement of 2015

• The goal: “Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels”

• The key feature was the (Intended) Nationally Determined Contributions (NDCs).
Article 6

• Allows countries to work together to meet their NDC goals

• But, DO NOT DOUBLE COUNT
What is the potential of Article 6?

- If Article 6 were implemented perfectly
- How much could costs be reduced?
- If those cost savings were applied to enhance ambition, how much more ambition might there be?

<table>
<thead>
<tr>
<th>2030 Potential Article 6 Reduction in Cost</th>
<th>Reduction in Cost</th>
<th>Increased Ambition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fossil Fuels Only</td>
<td>~$250 billion</td>
<td>5 GtCO₂ per year</td>
</tr>
<tr>
<td>Land Use Only</td>
<td>~$70 billion</td>
<td>4 GtCO₂ per year</td>
</tr>
<tr>
<td>Combined</td>
<td>~$320 billion</td>
<td>9 GtCO₂ per year</td>
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</table>
Potential for Cost Savings
# NDC Shadow Prices: Nature-based Solutions

Significantly reduce shadow prices in the near term

<table>
<thead>
<tr>
<th></th>
<th>2030</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independently</td>
<td>$0 to $101/tonCO₂</td>
<td>$0 to $111/tonCO₂</td>
</tr>
<tr>
<td>Implemented NDCs</td>
<td></td>
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<tr>
<td><strong>Fossil Only</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooperatively</td>
<td>$38/tonCO₂</td>
<td>$52/tonCO₂</td>
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<tr>
<td>Implemented NDCs</td>
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</tr>
<tr>
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<td>$20/tonCO₂</td>
<td>$59/tonCO₂</td>
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<td><strong>Fossil &amp; Nature-</strong></td>
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<td><strong>Based</strong></td>
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*DRAFT PRESENTATION—COMMENTS WELCOME*
Potential Changes in CO₂ Emissions

Buyers and Sellers under Article 6

Fossil Fuel and Industry

Land Use Change and Forestry

DRAFT PRESENTATION—COMMENTS WELCOME
The Potential for Enhancing Ambition
Potential Enhanced Ambition

Interpret the cost of achieving each country’s NDC as a willingness to pay.

- Apply each country’s savings from employing Article 6 to jointly achieving additional mitigation.
- Total cost will be the same as in the I-NDC scenario
- Emissions mitigation will increase.
Enhanced Ambition by A6 with Nature-based Solutions

Global Total CO₂ Emissions

Potential First Commitment Period
Enhanced Ambition

South America_Southern
South America_Northern
Colombia
Central America and Caribbean
Brazil
Argentina
South Africa
Africa_Western
Africa_Southern
Africa_Northern
Middle East
Pakistan
India
Indonesia
Southeast Asia
South Asia
Central Asia
Taiwan
China
Russia
Europe_Eastern
Europe_Non_EU
European Free Trade Association
EU-15
EU-12
South Korea
Japan
Australia_NZ
Mexico
Canada
USA
How Valuable is Article 6?

Article 6 holds significant potential to reduce cost and enhance ambition

- Everyone could be better off through collaboration

- Mitigation cost could be reduced by $320 billion in 2030.

- Mitigation could be enhanced by 9 GtCO₂/year in 2030.


Enhanced Ambition
42.4 GtCO₂e in 2030
Consistent with 2 °C
Challenges
The Challenges

• Near-term challenges:
  • How to translate heterogeneous NDCs into Internationally Transferred Mitigation Outcomes (ITMOs)?
  • Ensure that rules prevent “hot air”
    • Offsets are problematic
    • Calvin, et al. showed that seemingly air-tight rules for CDM-types of emissions trading can have perverse macro-outcomes.

Source: https://news.harvard.edu/gazette/story/2017/02/for-better-health-reduce-greenhouse-gases/
The Challenges

• Near-term challenges with Land Use:
  • Potential for leakage from incomplete land-use systems. That is, when not all land-use systems are controlled, market forces can shift deforestation from protected areas to unprotected areas.
  • How to communicate the marginal cost of carbon to land-use decision makers?
The Challenges

- **Longer-term challenges:**
  - Can dynamic incentives be developed to increase ambition?

- Substantially more research is needed.

DISCUSSION