

TOWARDS A POLICY MENU TO STRENGTHEN THE AMBITION TO MITIGATE GREENHOUSE GASES

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Executive Summary

The international climate negotiations acknowledge that ambition to reduce greenhouse gas emissions must be increased in the short term in order to maintain climate change at safe levels. Existing reduction commitments from countries play an essential role, but are not sufficient to close the gap between expected emissions and a two degree pathway. It is therefore imperative to identify areas with high mitigation potential as well as co-benefits; generate opportunities for action in these areas based on best practice experiences; provide matching support in terms of finance, capacity building and technologies; and encourage countries to sign up for such combinations of greenhouse gas mitigation and support.

This report proposes to develop a policy menu to strengthen the ambition to mitigate greenhouse gases that integrates best practice policies with support options. The policy menu would enable countries to identify, sign up for and receive support to implement proven policies and concepts in high impact areas.

In the short term (i.e. pre 2020 and relating to Workstream 2 of the Ad-hoc group on the Durban Platform, ADP) it would build on existing knowledge, processes and institutions for the sake of speedy greenhouse gas reductions. In the long term (i.e. post 2020 and as part of Workstream 1 of the ADP), the policy-menu approach may require a new process and institutional implementation to make full use of its potential to contribute to mitigation of climate change. This would include a hosting organisation in or outside the UNFCCC, modes of governance, as well as the capacity to undertake the technical work.

A 2013 submission of the Alliance of Small Island States (AOSIS) to ADP inspired the policy menu approach. Assuming that a group of countries is interested in pursuing the idea, it would benefit from expert contributions in this forum, in terms of policy development as well as technical detail. International Cooperative Initiatives could equally contribute much of the thinking necessary for the elements forming the basis of the policy menu approach in the short and medium term.

1 Introduction

The international climate negotiations acknowledge that ambition to reduce greenhouse gas emissions must be increased in the short term in order to maintain climate change at safe levels. The UNEP emissions gap report (UNEP 2013) finds a gap of 8 to 12 GtCO₂e (gigatonnes of CO₂ equivalent) in 2020 between expected emissions and what would be necessary to be on a pathway consistent with a temperature increase of 2°C. The report also highlights the urgency to act: delayed action will lead to the need for more costly efforts in the future, or may even make the goal unattainable.

Existing commitments from countries play an essential role, but are not sufficient to close the gap. Even under the most stringent modelled case with conditional targets and strict accounting rules, an 8 GtCO₂e gap will remain in 2020 (UNEP 2013).

The UNFCCC Ad-hoc group on the Durban platform (ADP), in its Workstream 1, encouraged countries to submit post-2020 national contributions to the global mitigation of greenhouse gas emissions within a 2015 international climate agreement. These may take the form of emission targets and, additionally, specific policies.

Under the other workstream of the ADP (Workstream 2), countries identify options to increase ambition to reduce greenhouse gas emissions before 2020. In that process it identified certain thematic areas where further emission reduction potential is available and, in addition, where measures have sustainable development benefits.

The IEA World Energy Outlook Special Report “Redrawing the energy and climate map” (IEA 2013a) has identified thematic areas (energy efficiency, fossil fuel subsidies, methane from oil and gas production, and the phasing out of inefficient coal power plants) that have a high reduction potential in 2020, and are both economically and ecologically beneficial. These thematic areas can all play an important role in both work streams, and were used as a basis for this analysis.

The Alliance of Small Island States (AOSIS) in 2013 submitted to the ADP Workstream 2 a proposal outlining steps for a technical process to analyse mitigation opportunities and to identify best practices that can be grouped by thematic areas. At COP19 in Warsaw, this proposal resulted in a decision asking for “...intensifying, as from 2014, the technical examination of opportunities for actions with high mitigation potential, including those with adaptation and sustainable development co-benefits, with a focus on the implementation of policies, practices and technologies that are substantial, scalable and replicable, with a view to promoting voluntary cooperation on concrete actions in relation to identified mitigation opportunities in accordance with nationally defined development priorities”.

The objective of this paper is to present a proposal for the development of a policy menu that countries may use both in considering ways of enhancing their pre-2020 level of ambition, as well as to design post-2020 national contributions to the 2015 agreement that are as ambitious as possible. Thus it combines the ideas of Workstream 1 (national contributions) with those of Workstream 2 (raising ambition in thematic areas). This paper takes the AOSIS proposal as a basis, and suggests a concrete outcome of the proposed

technical process: a policy menu (best-practice policy with pre-defined support). Moreover, it is the assumption of this paper that it may be easier for some national governments to adopt policies with proven sustainable development benefits than it would be to increase the stringency of their overall greenhouse gas reduction targets.

The paper takes three of the thematic areas identified by the IEA report (IEA 2013a) to illustrate the proposed approach. These include specific energy efficiency measures, limiting inefficient use of coal-fired power plants, and limiting emissions from upstream oil and gas production. Several other possible thematic areas show similar potential on mitigation potential and co-benefits—especially renewable energy—but for this explorative paper we focus on the three identified by the IEA.

Section 2 of this paper describes the way in which the policy menus could be developed in detail, both in both the short and longer terms. Sections 3 to 5 provide illustrative examples of parts of the policy menu for the three thematic areas. Section 6 describes the necessary next steps, and additional research required to implement the approach.

2 Set-up and development of a policy menu

This section describes a consistent and transparent process to identify and implement best practice mitigation policies in developed and developing countries. It builds on the process suggested by the AOSIS group¹. We first describe the three main elements of the process (Figure 1) and then discuss the short-term and long-term institutional options for its implementation.

Our approach includes three main elements that may, to some degree, run sequentially or in parallel:

-  **Element 1: Identify thematic areas with high mitigation potential.**
-  **Element 2: Develop a best-practice policy menu (including options for support).**
-  **Element 3: Have countries “sign up” for policy and support combination.**

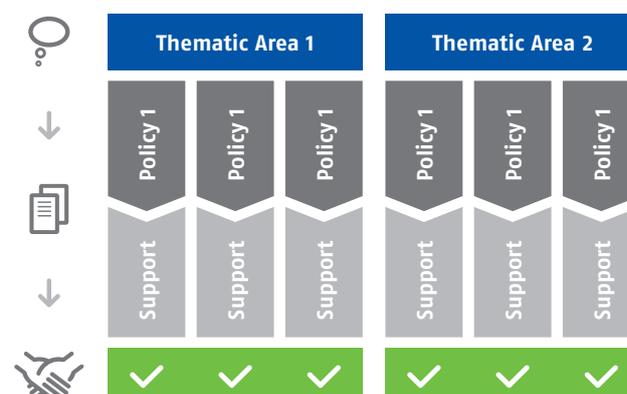


Figure 1
Outline of proposed approach

¹ AOSIS submission: https://unfccc.int/files/documentation/submissions_from_parties/adp/application/pdf/adp_aosis_workstream_2_20130911.pdf

2.1 Element 1: Identify thematic areas with high mitigation potential

In the first step, relevant mitigation areas that also have significant sustainable development benefits are identified. This entails, for example, research and synthesis of existing emission reduction potentials in the literature or from expert groups (e.g. IPCC, IEA), as well as input from the private sector and civil society. Thematic areas can be prioritised based on the size of the related mitigation potential, as well as on national priorities for development and co-benefits.

A thematic area can be defined by:

A sector
(e.g. transportation, up-stream oil and gas, etc.)

A technology option
(e.g. combined heat and power, wind or solar power, solar cookers, etc.)

An identified policy category that has an impact across sectors (e.g. energy efficiency, renewable energy, etc.)

A specific gas/source combination (methane from livestock, N₂O from wastewater, industrial process HFCs, etc.)

Box 1
Options for the definition of thematic areas

We propose a detailed description of the thematic area, including at least the following points:

Potential emission reduction in 2020	Additional investments needed (2014–2020)
Breakdown by sector	Sustainable development benefits
Regional distribution of emission reduction potentials	Barriers

Box 2
Template for the description of thematic areas

In the interest of keeping the process manageable, it may be useful to prioritise thematic areas and to select only a limited number of them for the start (e.g. 10 to 15).

2.2 Element 2: Develop best-practice policy menu (including options for support)

For each selected thematic area, a best-practice policy menu will be developed, which will also include matching options for support. The goal is to promote a process of developing and following a standard way of doing things—a best practice—which has proven successful, and which multiple countries can use.

Best practices are formulated following a process of reviewing, eliminating, and ranking policy alternatives that have been effective in addressing similar issues in the past, and that could be applied to a current problem. A long list of mitigation policy examples is evaluated against the following criteria:

Level of ambition

Sustainable development benefits

Successful implementation

Box 3

Evaluation criteria for mitigation policies

An important criterion is the level of ambition. The proposed policies have to be unambiguously ambitious to avoid countries signing up and receiving recognition without any actual effort.

The list of best-practice policy options will be based on experiences from developed and developing countries.

For the identified policies, the technical underpinning and financial needs of specific support options need to be elaborated. Since the capacity for implementation differs between countries depending on their state of development, the support options need to be formulated to focus on overcoming certain typical barriers linked to the respective

options. Existing studies and national experiences will feed into a related barrier analysis. Countries, organisations or expert groups participate in a discussion of existing barriers to policy implementation in the respective thematic areas. At the international level, developed and advanced developing countries could take the lead in sharing experiences of overcoming barriers.

The barrier analysis will flow into a collection of support options for the best-practice policies of the identified thematic area. The outcome of this step will thus be a list of generic policies combined with specific support options relevant to developed or developing countries (see Table 1).

Best-practice policy	Support to overcome barriers
Option 1	Support option 1a Support option 1b ...
Option 2	Support option 2a Support option 2b ...
...	...

Table 1

Outline of best-practice policy /support combination template

2.3 Element 3: Countries “sign up” for policy and support combinations

In the third step, countries formally sign up to implement one or more of the policies based on receiving the related support listed in the policy menus. Support for developed countries implementing best-practice policies could be limited to mentoring by front-runner countries, while developing countries could additionally be supported by the means identified as best suited to overcoming the technological, policy, financial, and other observed barriers. For example, the Green Climate Fund could agree to prioritise funding for the implementation of policies on the policy menu.

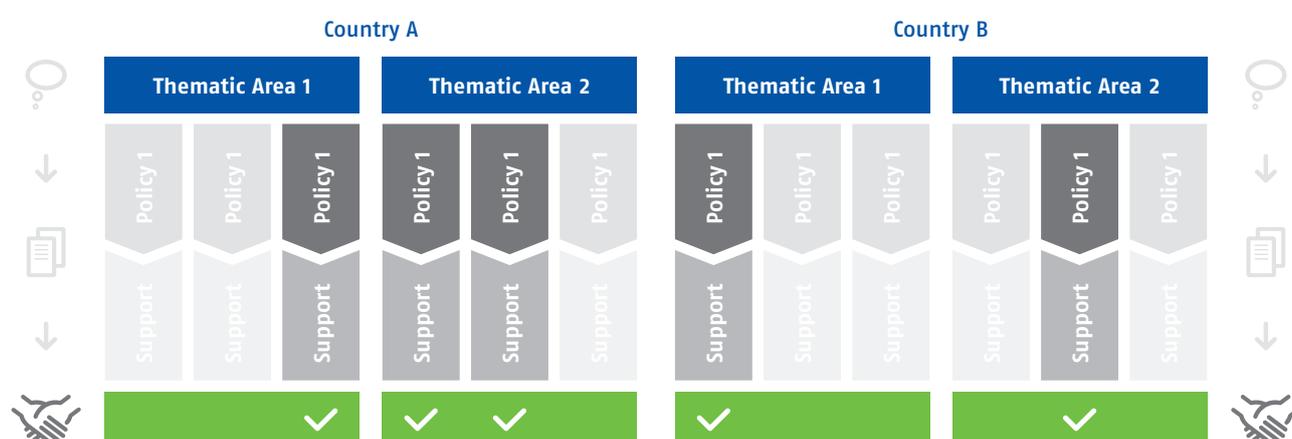
The approach outlined above points to the need for research, formulation, consultations and agreement of a number of issues. The question of “who does what” naturally follows,

and is discussed here and in the next section separately, in order to allow for independent discussions regarding the functioning of the approach on the one hand, and its institutional set-up on the other hand.

2.4 Short-term (pre-2020) implementation—building on existing institutions

The most critical limitation for the pre-2020 discussion is time. As described by several studies, delayed action will lead to more costly efforts, or even missing the 2°C goal. Therefore, in the short term, the described process can only build on existing knowledge, processes and institutions. This section describes the already existing structures and initiatives that fit into the concept, and on which it is useful to draw in the short term.

Figure 2
Different best-practice policy/support choices of two countries



Element 1: Identify thematic areas with high mitigation potential

Several institutions (e.g. UNEP, IEA and IPCC) have identified thematic areas with high mitigation potential that can be the starting point for the next steps:

- > **IEA:** The International Energy Agency has provided information on the status of global energy markets, and has analysed data to estimate energy-saving opportunities and related emission reductions. This data has been used as a basis for several studies, and has been cited by different governments around the world.
- > **UNEP:** The annual "UNEP Emissions Gap Report" publication synthesises the most recent scientific results on the level of emissions, and the trajectory required to stabilise the temperature increase at 2°C in 2020. In addition, the mitigation potentials per sector and the required investments are analysed. Finally, the reports cover successfully implemented policies in almost all sectors.
- > **IPCC:** In April 2014, Working Group III of the Intergovernmental Panel on Climate Change (IPCC) will adopt its comprehensive assessment report on the latest understanding of greenhouse gas mitigation, including potentials and policies. The results of IPCC reports are widely accepted and used for policymaking, as well as for identifying needs in mitigation and adaptation.
- > **UNFCCC:** The UNFCCC, under its ADP Workstream 2 is, since COP17 in Durban, considering options and ways to raise the level of ambition of countries before 2020. The work of the ADP has resulted in a technical paper by the UNFCCC secretariat of high-potential areas for increasing ambition², and in-session workshops that allowed for drawing upon the expertise of other international institutions and initiatives. In Warsaw, it has adopted a decision to intensify its technical work in 2014.
- > **Multilateral development banks:** The World Bank, Asian Development Bank, Inter-American Development Bank, African Development Bank, and others have spent considerable resources in formulating their respective countries' programme documents, including sections related to climate-change mitigation. These strategies have identified focus areas for GHG mitigation investment and technical assistance in member countries, often including information on the means required and any co-benefits.

2 <http://unfccc.int/resource/docs/2013/tp/08.pdf>

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- > **International Cooperative Initiatives:** International Cooperative Initiatives refers to a diversity of international collaborations outside the UNFCCC between countries and/or non-state actors dealing with actions in specific sectors and areas that contribute to mitigating climate change. They are enjoying growing support as potential vehicles of ambition-raising under the UNFCCC. Analysis of submissions to Workstream 2 of the ADP identifies ICIs that are highlighted in 16 formal submissions from Parties and Observers, and emphasised in three dedicated workshops during 2013. Sector- or theme-specific initiatives provide countries with information on mitigation potential and cost estimations that do not draw merely on scientific data.
 - > **G20:** A subgroup of finance ministers and central bank governors from 20 countries meet regularly at G20 summits to discuss several topics around finance, including fossil-fuel subsidies. This kind of high-level meeting can bring topics and thematic areas forward, as they recently have done with the theme of fossil-fuel subsidies.
 - > **Major Economies Forum (MEF):** MEF is a platform that aims to facilitate a candid dialogue among major developed and developing economies, to help generate the political leadership necessary to achieve a successful outcome at the annual UN climate negotiations, and to advance the exploration of concrete initiatives and joint ventures that increase the supply of clean energy while cutting greenhouse gas emissions. The forum plays an important role in the short term, since it has the potential to take topics onto the political agenda internationally.

Element 2: Develop best practice policy menu (including options for support)

A number of institutions engage countries to discuss policy and related support options, although the number is smaller than for the topic above.

- > **UNFCCC:**
 - **ADP:** The ongoing discussions in the ADP group on a further elaboration of the AOSIS proposal can play an important role for a short-term implementation. It would be well-placed to introduce the approach described here to produce concrete outcomes for enhancing Parties' pre-2020 ambition.
 - **NAMA registry³:** Nationally Appropriate Mitigation Actions (NAMA) are currently collected in a registry of the UNFCCC secretariat. The platform provides developing and emerging countries the opportunity to submit mitigation action plans that explicitly describe the required support to implement mitigation measures. However, the registry has no active role itself in defining best practices, nor in linking them to support.
 - **Climate Technology Centre and Network (CTCN):** The CTCN's major task is to help improving the market access for developing countries to mitigation and adaptation technologies. The centre provides a platform for both sides: suppliers and governments. It is approachable, and helps to identify the match-making as well as realising financial support. It is not directly involved in policymaking measures, but is experienced in supporting the needs of developing countries.

3 NAMA registry of the UNFCCC: <http://www4.unfccc.int/sites/nama/SitePages/Home.aspx>

– **CDM executive board:** The CDM executive board was, and still is, the responsible institution under the UNFCCC that approves methodologies for GHG accounting in mitigation projects. The experiences gained from the regular exchange with project developers and governments are useful to provoke thoughts about future market mechanisms as best-practice policy instruments that might be a relevant option for most of the economic sectors.

- > **International cooperative initiatives:** Some International Cooperative Initiatives are already facilitators of “policy menus”, such as, for example, the en.lighten initiative set up by UNEP and GEF. It was established to assist interested developing and emerging countries in initiating and effectively implementing their own market transformation programmes towards efficient lighting. Participating countries receive the necessary technical and policy support once they have signed up to join the initiative. Other initiatives or organisations, such as the International Renewable Energy Agency (IRENA), have the potential to become the initiators of policy–menu dialogues to support countries and improve technology/policy transfer.
- > **Other fora:** A variety of fora are discussing best–practice policies: e.g. the MEF, G20, and others. A variety of sectoral initiatives already develop lists of best–practice policies for, e.g., transport, buildings, industry, renewables, etc.

Element 3: Have countries “sign up” for policy and support combinations

The function of getting countries committed to sign up for policy/support combinations is currently taking place for NAMAs under the UNFCCC, and at the level of International Cooperative Initiatives, an applied concept.

- > **International Cooperative Initiatives:** Most of the International Cooperative Initiatives are already supporting countries with information, or simply with the exchange of the relevant players. However, it mostly does not require a formal “sign-up” as defined in element 3 of this approach. One example initiative that is close to the idea is the UNEP–led en.lighten initiative, which requires countries to sign up to join the initiative and to implement a phase-out of inefficient lighting by 2016.
- > **NAMA registry (UNFCCC):** Countries that submit proposals to the registry have the opportunity to receive financial support through bilateral or multilateral funds. However, as indicated above, the UNFCCC does not play an active role in identification of best practices, nor in linking these to support.

2.5 Long-term (post-2020) implementation— Options for institutional implementation

The previous section describes opportunities for short-term implementation of the policy menu approach, based on already-existing processes and institutional settings, to ensure that the approach will still impact the 2020 target.

In the long term, the policy-menu approach may require a new process and institutional implementation to make full use of its potential to contribute to mitigation of climate change. At the same time, it could make use of existing expertise in organisations and expert groups. The institutional set-up is discussed here with a clear focus on “form follows function”, and is distinct from the short-term considerations of existing climate-change political negotiations. This section therefore describes the functions required at the different steps, and considers which existing institutions can play a role in undertaking the work.

The ongoing negotiations on the 2015 agreements discuss different types of commitments, as well as an assessment architecture to ensure that efforts are sufficiently effective and equitably shared among the countries. The basis for such a structure is given by its principles, but the institutional structure needs to be developed alongside the discussions. The dominant approach remains focused on parties committing to headline targets, with little attention to how these will be achieved. The proposed policy-menu approach in this paper may also help in finding a suitable structure to develop a more bottom-up approach for the new climate regime.

Hosting organisation

The development of the menus and the facilitation of the sign-up process requires one or more host organisations. The UNFCCC could fulfil this role, as such work has already started, and countries could eventually sign up for these policies as part of their national contributions to a 2015 international climate agreement. Alternatively, the nature of voluntary engagement in the activities underlying this approach, and the need to motivate active participation by countries, irrespective of the current state of the ongoing climate-change negotiations, would point in favour of one or more host organisations outside of the UNFCCC processes. Existing institutions that could successfully host and support such an approach include, for example, UNEP and IRENA. The host organisation may facilitate formal interaction with ambitious countries, and refer parties to sources for information input as well as sources of support.

Governance options

During the development of the menu, several decisions have to be made related to procedures, rules, prioritisation, recommendations (e.g. to funding organisations). Within the UNFCCC, decisions would be taken by the COP, but would need to be prepared by subsidiary bodies such as SBSTA, and/or by more dedicated organs dealing with technical preparations, such as the Technical and Economic Assessment Panel within the Montreal Protocol⁴. Alternately, the UNFCCC could have a much less prominent governing role, by simply allowing for and acknowledging in the new 2015 agreement

⁴ The Technology and Economic Assessment Panel (TEAP) provides, at the request of parties, technical information related to the alternative technologies that have been investigated and employed to make it possible to virtually eliminate use of Ozone-Depleting Substances (such as CFCs and halons), that harm the ozone layer. TEAP provides reports and documents produced by itself and its specific Technical Options Committees (TOCs) and Task Forces.

groups of Parties to opt for collaboration in thematic areas (e.g. via platforms). In such a case, the processes would be more governed by the collaborating Parties themselves, while still being based on guidance by the COP. Finally, in the case of a process fully outside of the UNFCCC, countries (and other actors) willing to participate in ICIs would play an important role in contributing information and setting up the institutional processes for governing the approach (e.g. the Climate and Clear Air Coalition). Based on their willingness to sign up for and implement best-practice policies, countries could gain a seat on a steering committee, which is convened by the hosting organisation at regular intervals to consider technical input and take decisions.

Technical work

For the development and updating of policy menus, there will be a need for technical experts to work together in technical working groups. These collect necessary information from a variety of sources (see below) and prepare it for consideration by the governing body. The hosting organisation can play an important role in supplying the technical expertise itself, or in the organisation of (external) expertise. For specific thematic areas, specific expertise can be brought in. This expertise can come from countries, (other) international organisations, and independent actors (research institutions) as well as NGO (business and societal groups). Country “champions” that are already implementing these policies could lead and guide the technical discussions.

The specific functions, sources of input, and roles making up the institutional set-up of the approach are discussed in further detail below.

Element 1: Identify thematic areas with high mitigation potential

Functions:

- > Research on and synthesis of existing emission-reduction potentials in literature, or from expert groups, as well as input from the private sector and civil society.
- > Prioritisation of thematic areas, including consideration of national priorities for development and co-benefits

Sources of input:

- > IEA
- > UNEP
- > IPCC
- > UNFCCC (Secretariat, NAMA registry, CTCN, etc.)
- > GCF, multilateral development banks
- > International Cooperative Initiatives

Roles:

- > **Technical working groups** should synthesise the existing information and prepare an annotated proposal identifying thematic areas with high mitigation potential, in a comparable and transparent overview format (Box 2).

Element 2: Develop best-practice policy menu, including options for support

Functions:

- > Develop a long list of mitigation policy examples relevant to the agreed thematic areas.
- > Evaluate the list against criteria (Box 3) resulting in a best-practice policy menu.
- > Analyse barriers to the implementation of these policies, to produce support options that match the identified best practices.

Sources of input:

- > Best-practice policy examples, as well as options for support, based on observed barriers from the list of organisations above.
- > Sources from above relevant only to the particular thematic areas (e.g. International Cooperative Initiatives)

Roles:

- > Allowing for sufficient time for input from countries, the **technical working group** collects the relevant information and evaluates it against the agreed criteria (Box 3).
- > The **technical working group** analyses the barriers so far inhibiting the implementation of policies across countries, and uses this information to propose a best-practice policy menu with matching support options.
- > The **governing body** considers and agrees on the best-practice menu (in the format shown in Table 1), and provides guidelines or recommendations to funding agencies on the provision of means for support. The **host organisation** publishes the best-practice menu and deals with its disseminations to states and other actors.

Element 3: Have countries “sign up” for policy and support combination

Functions:

- > Management of the sign up process of countries
- > Monitoring and reporting on progress of the implementation and support

Roles:

- > The **governing body** invites countries to sign up for individual policy and support combinations. It publishes and maintains an updated list at the **host organisation**.
- > The **technical working group** monitors and prepares a report on the progress of implementation, including lessons learnt from in-country implementation, which are considered and evaluated by the **governing body**.

3 Example 1: Adoption of specific energy efficiency measures

3.1 The potential in the thematic area

Energy efficiency has been identified by several international fora as an important thematic area with high mitigation potential across relevant sectors, whilst also having significant sustainable development benefits. Two recently published IEA reports—World Energy Outlook 2013 (IEA 2013b) and Redrawing the Climate–Energy Map (IEA 2013a)—estimate a total additional reduction potential of 1500 MtCO₂ in 2020. Both studies see the highest share coming from indirect emission reductions due to increased efficiency in the end-uses of electricity. Further details are given in Table 2.



Potential emission reduction in 2020	1500 MtCO ₂ e (IEA 2013a)
Breakdown by sector	~30% industrial motors ~30% appliances and lighting ~30% heating and cooling ~10% road transport (IEA 2013a)
Regional distribution of emission-reduction potentials	Relevant for all regions
Additional investments needed (2012–2020)	900 billion USD (IEA 2013a)
Co-benefits	Reduced air and water pollution and health costs Energy security Macroeconomic benefits Less energy poverty
Barriers	Low public acceptance; lack of knowledge in target countries; information failure; price distortion; high upfront capital costs

Table 2
Thematic area key characteristics—energy efficiency

In the context of the international climate negotiations, under the ADP—Durban Platform Workstream 2—energy efficiency is currently discussed as an area that “offers many opportunities for mitigation action that could be employed and scaled up prior to 2020” (UNFCCC 2013).

Both the IEA study and the current discussions under the ADP stress that several low-cost options relating to energy efficiency are available. Options with short payback periods exist for some of the technologies: e.g. in Japan, less than one year for the replacement of an incandescent light bulb with LEDs (IEA 2013b).

3.2 Barriers to implementation

The feasibility of implementing measures to leverage the mitigation potential depends on certain barriers, which are broadly similar across countries. Major barriers include:

- > Policy barriers, such as market organisation and price distortions; especially in countries with fossil-fuel subsidies;
- > Information barriers and lack of awareness amongst financial institutions of financial benefits, as well as barriers amongst consumers to making informed consumer decisions;
- > Institutional bias towards supply-side investment and energy tariffs that discourage energy efficiency investments;
- > High upfront capital costs and perceived capital risk, as well as high transaction cost; and,
- > Lack of affordable energy efficiency technologies suitable to local conditions, and of capacity to maintain energy-efficiency technologies.

However, good examples exist to overcome some of the barriers.

3.3 Existing successful government policies

Governments have been actively implementing policies, particularly in the field of standards for appliances, cars and buildings. The UNEP gap report (UNEP 2013) found that 13 of the largest emitting countries (responsible for 72% of global emissions) have implemented a number of appliance standards, and introduced the concept of labelling. Most target electricity use in the building sector and encourage minimisation of electricity use from heating and cooling, as well as from appliances for cooking and other machines. The types of standards set differ between the sectors:

- > **Car standards:** For transport, standards for light vehicles ranging from 95 to 120 g CO₂ per kilometre have been set as obligations for certain target years. Some countries such as the US also plan to strengthen fuel-economy standards for heavy-duty vehicles (IEA 2013b).
- > **Appliance standards:** In the area of appliances and lighting, several countries have introduced obligations to phase out incandescent light bulbs—for example in the EU and Russia—or have set minimum standards.
- > **Building codes:** In the buildings sector, building codes play an important role in facilitating emission reduction through improved insulation technologies (retrofitting, etc).

However, there is still room to raise the ambition of these measures: the way they have been set up creates some uncertainty about the effectiveness. Some of them are not well-enforced, while others are not very ambitious.

The ambitiousness of the policies can be set, for example, by requiring implementation of all energy-efficiency measures with a payback period of, e.g., five years, or with marginal costs below 0 US\$/tCO₂e.

International Cooperative Initiatives

En.lighten – Global initiative to phase out inefficient lighting

Collaborative Labelling and Appliance Standards Programme (CLASP)

Global Fuel Economy Initiative (GFEI)

Global Building Performance Network's Energy Efficiency in Buildings initiative (GBPN)

Table 3
International Cooperative Initiatives – energy efficiency

3.4 Possible options for support

Development banks that provide credit lines may address barriers related to high upfront investments. However, success of the effective implementation of such funds depends also on the national circumstances, such as energy prices and awareness-raising campaigns.

The Green Climate Fund (GCF), in fact still in the process of developing a structure, will play a role in a future international agreement for distribution of funds. Here, the GCF could provide specific funding if a country agrees to implement one of the identified best-practice policies. The concrete design of such a scheme will need to consider certain criteria such as the environmental integrity, the implementation schedule, the ambition of the policies, and the limits of the fund.

Other funding opportunities such as the Global Environment Facility (GEF) could also play an important role and introduce the listed policies as a criterion to receive extra funding.



Best-practice policy	Support to overcome barriers
Building codes set at a level at least ensuring that all cost-effective potential is realised	Green Climate Fund – Guarantees for upfront investments
Car standards set with a trajectory towards complete decarbonisation by 2050	Green Climate Fund – credit lines and guarantees International cooperative initiative to coordinate global efforts
Top runner appliance standards	Green Climate Fund credit lines and guarantees (micro) NAMA institutional set-up International Cooperative Initiative to coordinate global efforts

Table 4
Possible elements of a best-practice policy menu – energy efficiency

Another important support option for countries could simply be a guarantee provided by partner countries to ensure short-term access to existing funds.

Other potentially relevant approaches include sector-specific generic NAMA templates that will drive an overarching strategy, and existing sub-bodies under the UNFCCC.

The role of international initiatives (Table 3) in energy efficiency – e.g. en.lighten – may be explored further to raise awareness of the subject.

A possible policy menu, including support options, is shown in Table 4.

4 Example 2: Limiting the construction and use of the least-efficient coal-fired power plants

4.1 The potential in the thematic area

Greenhouse gas emissions from the energy supply sector as a whole are still a major source, and are expected to increase until 2020. However, the recent published UNEP gap report 2013 (UNEP 2013) provided a range for overall sector savings of about 2,200 to 3,900 MtCO₂e in 2020, which includes all possible options (CCS, REN, energy efficiency in fossil fuel, fuel switch (coal to gas)) to reduce emissions within the sector. The specific option to limit the construction and use of least-efficient coal-fired power plants is detailed in Table 5.

Potential emission reduction in 2020	~640 MtCO ₂ e (IEA 2013a)
Regional distribution of emission-reduction potentials	30% China 25% US 15% India (average efficiency 28%) 10% EU
Additional investments needed (2012–2020)	No information
Co-benefits	Improved air quality Energy security
Barriers	Continued use of old, inefficient plants remains a short-term, cheap option for power generation High investments to improve or replace inefficient power plants Market organisation and price distortions

Table 5
Thematic area key characteristics – limiting the construction and use of inefficient coal-fired power plants

4.2 Barriers to implementation

The typical barriers that occur in the energy supply sector have already been identified in a large body of literature and fora. In the latest version of a technical paper, prepared by the Secretariat for the ADP group (UNFCCC 2013), the following areas have been discussed:

- > Higher costs of low-carbon options compared to fossil-fuel;
- > The high increase in the demand for electricity driven by economic growth; and,
- > The lack of affordable alternatives to meet demand in a sustainable way, as well as price distortions (e.g. through subsidies) and market organisation.

4.3 Existing successful government policies

There are also a number of policies available addressing the prevention of the construction of new inefficient coal plants and the reduction in the use of existing ones. The following paragraph lists some examples of successful government policies.

- > **Greenhouse gas cap (and trade):** To overcome the barrier of higher cost for low-carbon options, setting a price signal for the emission of GHGs is a successful policy option. In total, 32 domestic or supranational cap-and-trade schemes covering about 50 countries have been, or are about to be, implemented (ICAP and Ecofys 2013). Overviews of the global status were published by several

institutes: ICAP and Ecofys (2013), World Bank (2013), and IETA (2013). As an example, the carbon-price mechanism in Australia makes it currently economically unattractive to build new coal-fired power plants.

- > **Carbon taxes:** In some countries, carbon taxes have been in place for longer, such as those introduced in the early 1990s in Scandinavia. Others have only been introduced recently or are scheduled (e.g. in South Africa). The World Bank (World Bank 2013) provides a full list of taxes that are in place or planned.
- > **Performance standard:** Standards exist for new fossil fuel power plants in some countries, such as Canada and the USA, which prevent the construction of new coal-fired power plants. Standards for existing fossil-fuel plants are under discussion in the USA.
- > **Other regulation:** Policies geared at air pollution have an impact on inefficient coal-fired power plants. Such regulation has led to the phasing out of 70 GW inefficient coal power in China (IEA 2013a), and is now preventing the construction of new coal-fired power plants in three Chinese regions.

4.4 Possible options for support

A support option specific to coal could be a “scrapping premium” through the Green Climate Fund, or multilateral development banks: A fast-track loan will provide financial support to replace inefficient coal with low-carbon technologies.

A possible policy menu is shown in Table 6.



Best-practice policy	Support to overcome barriers
Introduction of a cap-and-trade scheme with a sufficiently high carbon price to prevent building of new unabated coal-fired power plants	Green climate fund—fast-track funding and guarantees for low-carbon electricity generation PMR—Partnership for Market Readiness—provides capacity-building fund, etc. ICAP – join the partnership to receive training
Emission standard or other regulation that effectively stops building of new unabated coal-fired power plants	Green climate fund—fast-track funding and guarantees for low-carbon electricity generation
Emission standard or other regulation to phase out old and inefficient coal-powered plants	Green climate fund—scrapping premium

Table 6
Best-practice policy menu for reducing emissions from coal power plants

5 Example 3: Minimising methane emissions from upstream oil and gas production

5.1 The potential in the thematic area

The third option highlighted by the IEA focuses on methane emissions from the upstream oil and gas industry, which is a GHG source with emissions likely to increase in the future following an increase in energy demand. Three sources are primarily responsible for GHG emissions in the sector: venting (the intentional release of natural gas that cannot be used otherwise to the atmosphere); flaring (burning of natural gas that cannot be used otherwise); and fugitive emissions (unintentional leaks).

The current annual global emissions from this sector range from 1 to 1.6 GtCO₂e (2010) and will further increase, and potentially even double, until 2020. 300 MtCO₂e of emissions could be reduced in 2020 by decreasing venting and by improving flaring efficiency in oil/gas fields. A further 270 MtCO₂e can be reduced at natural gas fields. Most of the mitigation options addressed in the IEA scenarios consider short timeframes and low-cost options, such as the renewal of infrastructure (leakage during transportation) and best practices for maintenance and operations. Further details are given in Table 7.



Potential emission reduction in 2020	~570 MtCO ₂ e
Breakdown by sector	~50% oil operations ~50% natural-gas operations
Regional distribution of emission-reduction potentials	Large reductions in Russia, the Middle East, Africa and the USA
Additional investments needed (2012–2020)	20 billion USD (IEA 2013a)
Co-benefits	Improved air quality Energy security Improved working conditions in mines
Barriers	Market organisation and price distortions

Table 7
Thematic area key characteristics – methane emissions from oil and gas production

5.2 Barriers to implementation

The mitigation potential in oil and gas production has, in the past, remained untapped, even though policies to reduce the sector's emissions exist in many countries. Barriers to further mitigation are lack of awareness, high technology costs, and missing regulatory frameworks. However, barriers are generally very country-specific and related to national circumstances, such as ownership rights of the oil and gas fields.

Lack of awareness among the operators about the extent of their emissions is mostly due to the invisibility of the vents. Lack of appropriate measuring equipment is an important barrier that may be addressed with low-cost options or appropriate policies.

5.3 Existing successful government policies

Regulations to reduce emissions from the oil and gas production exist in many countries. However, lack of enforcement and monitoring reduces the effectiveness of these regulations.

- > **Sectoral regulations:** To minimise emissions from the oil and gas sector, sectoral regulations have been implemented in Russia, Ukraine, Argentina and Columbia. Russia, for example, implemented a regulation to reduce emissions from gas flaring in 2009. A 5% limit for gas flaring has been set for the year 2012 and beyond, with fines imposed where the threshold is exceeded, or no measurement equipment is installed.
- > **Voluntary programmes:** Support programmes have been established in the USA and Canada to reduce emissions from oil and gas production. The programmes aim to encourage operators to adopt cost-effective technologies and practices that improve operational efficiency and reduce emissions of methane (EPA 2013).

International Cooperative Initiatives

Global Methane Initiative

Partnership for Market Readiness – PMR

International oil and gas associations

Climate and Clean Air Coalition – CCAO

Table 8
International cooperative initiatives oil and gas production

5.4 Possible options for support

To overcome the barriers of implementing policies or to create incentives to start reducing methane emissions in the countries, specific support schemes can play a role.

Creating incentives for operators, such as putting a price on methane emissions, can spur improvements in technology or operational practices. Market-based mechanisms, such as a cap-and-trade or offset schemes, could support mitigation of methane emissions from flaring and venting, as already done in over 100 projects under the Clean Development Mechanism (UNEP Risoe 2013).

The ongoing discussion (under the UNFCCC) about a new market mechanism (NMM) can be a good starting point when considering this sector. Currently, there are two types of NMM being discussed (European Commission 2012): a trading approach, and a crediting approach. While both types involve the use of fungible units (i.e. allowances or credits) and are envisaged to generate offset opportunities for developed countries to some extent (UNFCCC 2012), 2/CP.17, §83), the implementation of the two options differs.

The lack of general monitoring practices to reduce emissions from venting can be overcome by taking a closer look into the existing CDM project methodologies. Project developers had to develop complex monitoring systems, which needed to be adjusted to the individual country circumstances.

International Cooperative Initiatives could support the implementation of market-based mechanisms by providing financial support to establish structures and connect similar countries (see also Table 8).

A possible policy menu is shown in Table 9.

Best-practice policy	Support to overcome barriers
Regulation to phase out methane emissions from upstream oil and gas production	Country mentorship
Increasing enforcement: Use common certification standards	International cooperative initiative to develop a common certification standard
Introduction of a cap-and-trade scheme	PMR—Partnership for mitigation readiness—provides capacity-building fund, etc. ICAP – join the partnership to receive training
Introduction of a sectoral market mechanism	Development of default rules for a sectoral market mechanism under the UNFCCC

Table 9
Best practice policy menu for reducing emissions from oil and gas production

6 Next steps

As the brief analysis has shown, developing a process to increase the emission-reduction ambition level of countries through policy menus is feasible, and builds on already-existing activities, but still needs more international attention and analysis before it can be fully implemented.

Possible next steps include:

- > **ADP:** With the general concept in mind, countries could build on the policy-menu approach and promote this further in the ADP group by presenting and discussing the idea, forming a group of countries that are interested, and receiving more advice from experts outside of the ADP. A first concrete step to get more attention within the ADP group could be a submission on the policy-menu approach.
- > **Initiatives:** International Cooperative Initiatives can play an important role by independently moving the idea forward, and using the structure for themselves or to influence the debate at the international level. Although many organisations have already progressed to identifying the mitigation potential, only a few have started to think about the concrete policy implementation and the related support options that are necessary to overcome barriers.
- > **Outreach:** In the next months, meetings with relevant actors (initiatives, governments and experts) could be organised. A person such as the UN Secretary General could take the lead in further promoting the approach, especially on the level of initiatives. A side event or a full-day workshop during the Bonn SBSTA session in June could be organised. Another follow-up event could be planned for the Climate Summit chaired by the UN Secretary General Ban Ki-moon in September 2014.
- > **Additional research needs:** For a few front-runner thematic areas, experts could start developing a policy menu including options for providing support and an impact assessment. Thematic areas identified by the IEA, as well as topics that are high on the political agenda—such as renewable energy supply—could be interesting for further research in the form of an extended pilot study. The future institutional set-up is also briefly described in the paper, although this still requires further in-depth analysis, especially regarding the question on linkage to the UNFCCC.

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