

Policy Brief

The Role of Energy in National Determined Contributions

Nationally Determined Contributions (NDCs) are the main instruments put forward by countries to deliver on the promise of the Paris Agreement. They constitute an articulation of governments' commitment to tackle climate change, including emissions mitigation pledges, that countries consider achievable through various actions and investments that align with development priorities.

Unsurprisingly, the energy sector is central to NDCs: 98% of NDCs include reference to the energy sector, with 69% referencing renewable energy supply specifically.ⁱ This may be a function of the fact that the sector is responsible for nearly a third of global greenhouse gas (GHG) emissions.ⁱⁱ More importantly, however, improving energy access and meeting increasing demand are central to achieving development objectives as countries seek to harness synergies between development strategies and NDCs.

KEY FINDINGS

- ▶ Energy sector reform is critical to NDC achievement, as it is a driver of the vast majority of NDC GHG mitigation plans. This includes focus not only on energy generation, but also use of energy in other sectors including transport, manufacturing, and industry.
- ▶ Current mitigation targets outlined in NDCs fall far below the ambition needed to maintain climate change to a 2-degree threshold. Greater ambition is deeply needed to stay within these bounds.
- ▶ There are barriers to not only to increasing ambition, but achieving existing NDCs. These include organizational and technical barriers, tracking implementation, and financial resource issues that have to be addressed.
- ▶ There are opportunities for addressing these barriers through better coordination across governments, leveraging domestic and international financing opportunities and creating attractive investment environments. Countries must take these actions, but with support through increased international provision of finance, coupled with increased access.
- ▶ It is critical that energy cooperation seeks to align its efforts with those of NDC-focused cooperation initiatives as well as the countries NDCs themselves.
- ▶ There is a need for coordination between energy sector transitions, NDC implementation plans, and SDGs. This seems natural, but is not the default in practice. Availing some of the emerging opportunities for international partnership and cooperation on NDC implementation can provide opportunities to establish and strengthen this coordination.

The shift to cleaner energy supply is critical to the achievement of GHG mitigation components of NDCs, but few NDCs have specified clear targets. Nevertheless, examples of energy sector contributions include targets on energy efficiency (e.g. Morocco – 48% energy savings by 2020), commitments to expand renewable energy (e.g. China – 200 gigawatt of wind by 2020), and commitments to fiscal policies in the energy sector such as fossil fuel subsidy reform (FFSR), carbon pricing, and clean energy subsidies (e.g. Vietnam – FFSR, Mexico – carbon pricing, Ghana – clean energy subsidies).^{iii iv}

Beyond energy supply, energy use strategies play a central role in NDCs, for example with measures aiming at the electrification of transport, energy efficiency measures and implementation of technologies, such as heat pumps, rooftop solar, and energy feed-in options.

It has come to light that the efforts presented to-date are not nearly sufficient to reduce emissions in a manner that is consistent with achieving the goal of holding the global temperature increase to well-below 2°C.^v In fact, the most recent UNEP Gap Report^{vi} shows that existing pledges would only get us a third of the way. Emissions from energy supply are expected to grow from 13.5 gigatonne carbon dioxide equivalent (GtCO₂e) to 16.3 GtCO₂e by 2030.^{vii}

NDCs are to be reviewed every five years and part of the goal of this is to drive a progression in ambition. The collective progress towards the Paris goals and our future ability to meet them, considering the levels of ambition exhibited in NDCs, will be assessed every 5 years, starting in 2023, through a global stocktake.

Revisions and adjustments in energy strategies will be critical, not only to increase ambition, but also to recognise changes in technologies and market forces such as the continued decline of global renewable energy prices leading to record increases in technology penetration, such as solar photovoltaic (PV), which represented 47 percent of all newly installed renewable energy capacity in 2016.^{viii}

For most countries, greater ambition for their NDCs is conditional on significant, additional financial support from developed countries. In fact, a review of support required for NDCs indicated that financial assistance for electricity generation was the most consistently highest-rated need across all sectors.^{ix} Increases in mitigation ambition will be closely tied to increased provision of, and access to, finance. Attracting this finance is one of the implementation challenges countries are facing, as explored in the following section.

NDC Implementation – Challenges for the Energy Sector

There are several challenges to achieving the components of NDCs related to energy. There is still much work needed to plan implementation actions, understand barriers to be overcome, and secure the necessary financing. The challenges outlined below hold both for developed and developing countries, albeit to varying degrees. Solutions to these challenges need to ensure the best possible fit between national development pathways and ambitions to decarbonise the energy sector as a central element of achieving (more ambitious) NDCs.

Inter-ministerial cooperation and alignment of sectoral strategies: Multiple studies of NDC development and implementation have highlighted the limited timeline for NDC development and submission ahead of the Paris Conference. This resulted in imperfect coordination and ownership of NDCs across governments. As countries move into implementation, cross-sectoral coordination and buy-in is critical and requires national leadership from heads of governments, as well as processes to foster collaboration. As an example, planning tools and analyses conducted to determine NDC targets are often different from those used for planning energy supply.^x

Energy is by its nature a cross-sectoral issue. While a lack of engagement itself is a barrier, seeking to highlight and build on synergies between inter-linked sectors such as transport and energy supply can help overcome barriers and generate momentum.^{xi} Along those lines, engaging effectively with sectors that are major consumers of energy is essential, including manufacturing, industry, transportation, and in many countries even land use sectors, such as agriculture. The need for ministerial coordination will become increasingly important as efforts to reduce emissions in these sectors will draw on the need for clean and secure supply of energy to replace fossil fuels.

Countries are also wrestling with other concurrent processes and objectives, which makes coordination important to broker compromise. These include for example the achievement of green growth, a just transition for workers, and critically the 2030 Agenda for Sustainable Development, specifically achievement of the Sustainable Development Goals (SDGs). Each of these requires its own resources, efforts and coordination across sectors and government. SDG goal thirteen on climate action, and seven on affordable and clean energy, are intrinsically linked – but so too are goals such as those focusing on sustainable consumption and production, decent work and economic growth, and sustainable cities and communities. There are links to the energy sector in all of these goals, just as there are in the NDCs. Without a coherent approach to these many processes across government there is a risk of an inefficient use of resources, a limited impact of finite financial supports, and the potential for conflicting outcomes.

Finally, Ministries of Finance and Planning are foundational to any implementation strategy. These ministries not only hold the purse strings for NDC implementation, but also have the authority to implement fiscal policy reforms that can generate new domestic finance and create economic incentives to reduce emissions. Examples of such reforms that countries are exploring include carbon pricing instruments and the reduction of fossil fuel subsidies. Such policies can help countries complement a project-by-project planning approach that has been often used with macro-economic policy planning, a necessary step as countries realise the need for NDCs to be more transformative in nature to achieve the Paris goals.

Tracking implementation: Tracking NDC implementation, for instance through a periodic review, will be essential for countries to stay on track and gradually increase their ambition from one NDC to the next. Monitoring progress and taking stock will be challenging for most countries and will require existing structures to be strengthened. Countries strongly agree that there is a need for national monitoring, reporting and verification (MRV) systems, which would provide for greater transparency and informed decision-making, while at the same time allow countries to meet the reporting requirements of the Paris Agreement.

These systems should not be overlooked as they are key to assessing progress in GHG mitigation, and understanding the aggregate impact of mitigation actions both currently and in the future.^{xii} Beyond the mitigation impact, the tracking of data on direct and indirect effects of policies, across concepts such as green growth, SDGs, just transition and NDCs, will be important to support the regular engagement of implementation teams across departments and to ensure their continued commitment, while also creating greater knowledge on the achievement of broader development goals.

To support policymakers in tracking and reporting on the impacts of their climate actions, the Initiative for Climate Action for Transparency (ICAT) has developed guidance covering the assessment of GHG reductions, sustainable development benefits and the transformational change impacts of policies and actions.

Technical capacity: Many of the technologies required to support wide-scale decarbonisation of the energy sector are relatively new and are undergoing constant evolution. For many countries there is a need for greater technical capacity in cutting-edge technologies that are producing better energy outcomes at lower costs than previous generations. In addition, as increasing amounts of intermittent renewable energy resources come online, there is also a need for existing energy systems to become more flexible and technologically capable to accommodate them through means such as smart grids, and the modernisation and extension of grid infrastructure.^{xiii}

Given that – as was noted earlier – NDCs are currently not on track to meet the 2°C threshold, it is all the more important that the types of technologies to be supported are those compatible with a 2°C climate scenario. These include wind, solar PV and small hydro as central focus technologies, with conditional inclusion of generation technologies for sources such as natural gas if they can be proven to be consistent with a pathway to complete decarbonisation.^{xiv} Under a fully-aligned 2°C scenario this would include energy storage technologies, low-carbon transport fuel infrastructure, and low-carbon vehicles. A list of these technologies can be developed in advance and in addition to testing against a 2°C target or against NDC-consistent outcomes.^{xv}

In many countries existing national capacity is tied to the existing energy system, which is often fossil-fuel based. This creates an entrenched barrier to the adoption of new technologies and processes, with domestic capacity often strongly linked to exactly those types of energy technologies and that type of infrastructure which must be transitioned towards more sustainable alternatives. The need to shift from entrenched technical capacities to new, low-carbon ones represents a major issue to be addressed. The scale-up needed to decarbonise energy systems and to implement ambitious NDCs also requires the engagement of key stakeholders in academia, business and the government. Notably, national education programmes and training need to be brought in-line with goals. Such collaboration between stakeholders is also an area where sharing capacity building, knowledge expertise and technology transfer can go a long way to overcoming barriers.

Attracting investment: To limit the temperature increase to 2°C, the International Energy Agency (IEA) estimates that additional technology investments of USD 1 trillion will be needed by 2050 in the energy sector. This will inevitably require a massive mobilisation of private investments – but attracting investment from the private sector for clean energy investment is considered a significant challenge for many countries.

Policy reforms to create environments that are conducive to low-carbon energy investments are crucial to leveraging private domestic and international finance for energy transitions.

This growing investment need still holds for on-grid solutions, even though progress has been made in this area and even as prices for renewables fall internationally bringing them ever closer to parity with fossil fuel sources. However, this investment need is increasingly a focus for off-grid solutions where smaller scale solutions are necessary (both in terms of energy generated and GHGs reduced). In these off-grid situations there is no access to a national grid to support or counterbalance intermittent generation sources, and there may be other barriers that are not simply technical in nature (e.g. extreme climate or geographical remoteness). Studies have also identified a lack of international climate finance specifically for decentralised energy: only three per cent of approved climate finance is targeted at decentralised energy projects.^{xvi} These additional off-grid issues affect investment and require strong (political) attention to create viable business models and attractive investment environments.

Energy sector plans, embedded in long-term low emission development strategies (LEDS), can provide the necessary vision for the future, and can give a clear signal of the direction being taken to decarbonise the energy sector and grow renewables' share in the energy mix. This will be key not only to attracting low-carbon investments, but also in discouraging investments in GHG-intensive technologies and infrastructure which represents a real risk of lock-in to a carbon-intensive pathway.^{xvii}

Energy Development Cooperation to support NDCs, and Europe's Contribution

International cooperation is key to support NDC implementation and to help strengthen future NDCs so that international climate goals are met. A number of significant international cooperation initiatives have therefore been established, seeking to support developing countries in implementing their NDCs, and bringing countries together to share and integrate best practices. The aim thereby is to help overcome the institutional, technical and financial barriers to energy sector transition which have already been identified by multiple sources as some of the major areas of concern with respect to NDC achievement, particularly for developing countries.

International cooperative initiatives on NDCs

1. **NDC Partnership:** Launched at COP22 in 2016, the NDC Partnership has emerged as a leading institution to enhance cooperation to support the implementation of NDCs by developing countries, in a way that aligns with the countries' development objectives and the 2030 Agenda for Sustainable Development. The Partnership seeks to achieve its goals through three primary activities including technical assistance, the creation and dissemination of knowledge products, and by promoting enhanced financial support for NDC implementation. 60 countries and the European Commission are currently members of the NDC Partnership.^{xviii}
2. **The NDC Cluster:** Seven projects with a funding volume of EUR 56 million supporting political and institutional frameworks, sector approaches, financing, and data and transparency.^{xix}

3. **AFD NDC Facility:** Implementation in 15 developing countries, supported by EUR 30 million looking to translate NDCs into policies and action plans in key sectors.^{xx}
4. **NDC Support Programme:** UNDP programme focused on country and community support in NDC implementation. Technical advisory support for national climate plans, mitigation strategies and actions, and transparency and evidence.^{xxi}
5. **International Partnership on Mitigation and MRV:** Partnership of 70 countries exchanging information and experience on climate change mitigation, including through trainings, platforms for dialogue, discussion documents, and a knowledge portal.^{xxii}

Though these initiatives represent an important first step in convening expertise, exchanging solutions and directing attention towards the shared challenges of ensuring energy plays a full role in achieving NDCs, more remains to be done.

Critically, energy development cooperation must seek to align its efforts with those of NDC-focused cooperation initiatives, as well as with the aims and strategies of the countries' NDCs themselves. Without systematically seeking these synergies, the Paris goals will become even more challenging to achieve, particularly in light of the multiple agendas and strategies which countries are working to implement concurrently. Here the European Institutions and Member States are well placed to cooperate and coordinate their support efforts, helping to ensure assistance is coherent and targets the greatest barriers being faced.

This need for coordinated and coherent policy in support of energy transition and NDC implementation also holds for countries and their domestic policy agenda. By its very cross-cutting nature energy naturally affects governmental ministries, agencies and departments, increasing complexity and the need for joined-up policy making. Further coordination is also needed with a view to the multiple ongoing (international) processes. Looking at ways to integrate the NDC process with the SDGs for example will enable countries to streamline activities and thus decrease management resources across government, target investments in the energy sector such that they also enable the achievement of other goals, help avoid unintended consequences, and ensures that the whole of government is on the same page in terms of both implementation and achieving complementary outcomes.

Financing for energy development cooperation remains a key challenge, and the scale and scope of finance needed by many countries is significant. In many developing countries much focus has been put on securing international climate finance for specific projects, but there is also potential for domestic fiscal policies to shift the incentive, leverage funds for NDC implementation, and help overcome some of the barriers identified above. Looking closer to home countries also need to strengthen their domestic financial infrastructure – with tools such as subsidy reform and carbon pricing mechanisms – to help support their energy transitions. They need to work to establish appropriate governance systems and to help create attractive investment environments that are conducive to securing finance from both public and, importantly, private sources. Domestic fiscal policy coherence supports such measures by

enhancing a country's attractiveness for international climate finance – it demonstrates motivation for implementation and strengthens transparency. And without such measures there is little hope of attracting financing on the scale needed for energy transition, and thus NDC implementation and the fulfilment of SDG7 and SDG13.

On monitoring progress towards achieving the goals countries have committed themselves to, indicators and tracking systems provide the ongoing ability to ensure that these outcomes are being achieved, allow for course corrections, and help ensure delivery. Here too there is the opportunity to overcome siloed thinking and to realise synergies through smart coordination. Developing databases and processes that allow for the collection and tracking of data on implementation of NDCs, while also integrating monitoring and reporting on SDGs and other influencing policies and actions, is an obvious but critical place to start. Ensuring that the MRV mechanisms necessitated by international processes allow for transparent, timely and streamlined action is central to this. This will, however, only bear fruit if the competent and mandated national authorities are well-equipped to measure and manage this important process of evidence gathering and reporting. Support for such organisations within development cooperation therefore has a role to play, not least as other agendas such as the job creation contribution of investments in energy gain attention. Here too European development cooperation partners can contribute to shoring up the policies and investments with the evidence and skills needed for an energy transition that delivers on NDCs.

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