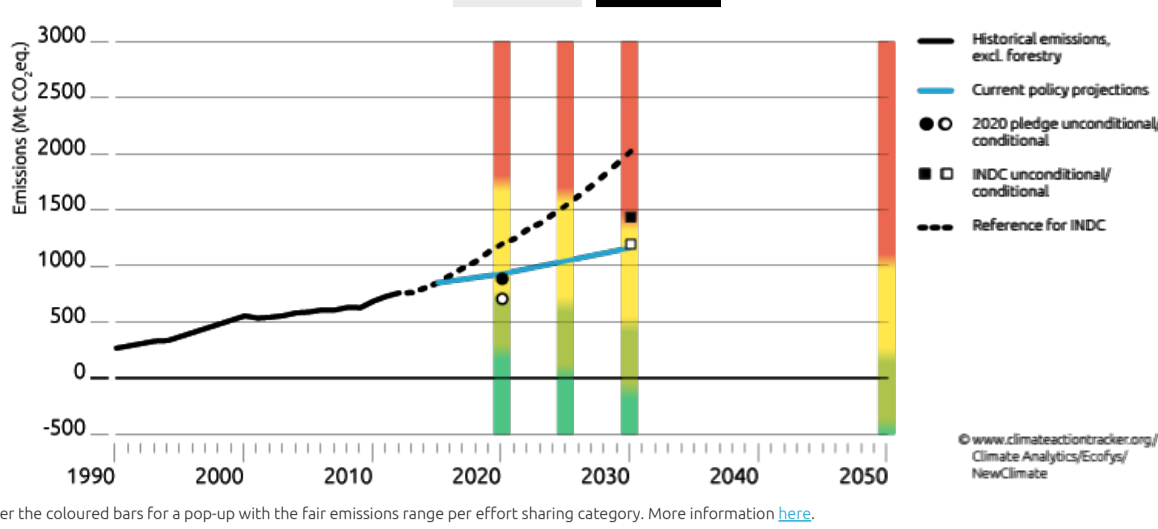
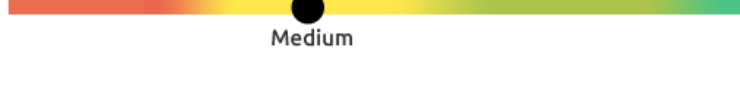


Rating



Note: Hover over the coloured bars for a pop-up with the fair emissions range per effort sharing category. More information [here](#).

Assessment

Indonesia's emissions from both deforestation and coal are set to increase rapidly over the period to 2030. In contrast, to be consistent with the Paris Agreement temperature goal the emissions should be stabilising, if not beginning to decline, by that time. On deforestation, Indonesia is the only main deforesting country where a strong increase in deforestation emissions can be expected in the period to 2030. Present trends indicate that a loss of 25% of the current forest area by 2030 can be expected under present policy settings. There is an apparent double standard in relation to climate policy where, on the one hand, renewables are being pushed to play a stronger role in the energy mix, but on the other hand a large and growing role for coal is being locked in, leading to continually rising emissions. The National Energy Plan, for example, requires 30% of total primary energy to come from coal by 2030, an unnecessary constraint on developing a low carbon economy. Ongoing and planned construction of new coal-fired power plants to meet rapidly increasing electricity demand appears likely to bind the country to this carbon-intensive technology for many decades. Under present policy settings, we project a 70% increase in emissions above 2010 level by 2030 from energy and industry sectors. We rate Indonesia's INDC as "medium" as it is at the least ambitious end of what would be a fair contribution, and is not consistent with limiting warming to below 2°C, let alone with the Paris Agreement's stronger 1.5°C limit, unless other countries make much deeper reductions and comparably greater effort.

Indonesia's [Intended Nationally Determined Contribution \(INDC\)](#), released on 24 September 2015, includes an unconditional 2030 GHG emissions reduction target (including land-use, land-use change and forestry (LULUCF) emissions) of 29% below business-as-usual (BAU) and a conditional 41% reduction below BAU by 2030 (with sufficient international support). Indonesia had earlier already pledged a 26% reduction below BAU by 2020. These targets include deforestation emissions due to deforestation and peat land destruction, which account for the largest source of Indonesia's emissions, an average of 60% of total emissions over the last ten years (based on the national inventory). Recent data show no signs of deforestation slowing down.

Indonesia's deforestation already contributes to a large share of global deforestation emissions: taking into account the uncertainties in global deforestation emissions (Werf et al., 2009), in some years over the last decade, Indonesia's emissions from deforestation (according to the BUR1) could have been up to 40% of the global total.

In its [October 2015 assessment of Indonesia's climate policies](#), the Climate Action Tracker downgraded Indonesia's rating because of a lack of clarity as to how it would apply the INDC target to LULUCF emissions. However, Indonesia's first Biennial Update Report (BUR1) to the UNFCCC (Republic of Indonesia, 2016a) shows the 2020 target being applied in equal measure to each different sector, i.e. the 26% reduction applying also to LULUCF emissions. In this updated assessment, we have thus assumed that the level of action on reducing LULUCF emissions is the same as that on non-LULUCF emissions, resulting in a "medium" score.

With currently implemented policies, Indonesia will probably achieve its unconditional 2030 pledge (29% below BAU) as far as non-LULUCF emissions are concerned and may just meet its conditional target as well. Assessing the LULUCF emission trajectory is somewhat complicated by the fact that the target's baseline shows large fluctuations due to the variability of emissions from peat fires from the El Niño influence, and the baseline of peat fire emissions referenced in the INDC appears to show a peak precisely in 2030. This makes the "29% below BAU" target rather unambitious if applied to this exact value.

Issues with deforestation data and emissions

While the Indonesian Government's data shows relatively stable deforestation levels and deforestation emissions for the last decade (Ministry of Environment and Forestry, 2015), independent scientific sources indicate a strong increase in deforestation over the same period, despite the fact that Indonesia has, temporarily, (2010–2016), prohibited primary Forest clearing and peat land conversion.

While the Government BAU projections show emissions from deforestation (excl. peat fires) as roughly constant, this does not appear to reflect the current reality on the ground, which points towards increasing deforestation. A draft version of Indonesia's INDC indicated plans to protect 12.7 million hectares of forest areas by designating it to social forestry, ecosystem restoration, conservation and sustainable use (Government of Indonesia, 2015). The final INDC no longer mentions these plans. [Last year's assessment of Indonesia's climate policy](#) highlighted the Climate Action Tracker team's major doubts around the credibility of Indonesia's baseline emissions from forestry.

Construction of new coal-fired power plants risks lock-in of high emissions

One important implemented policy is Indonesia's ambition to increase renewable energy to 23% of primary energy supply by 2025, from today's share of 6%. This target was anchored in the National Energy Policy in 2014 and is supported by a feed-in tariff. However, Indonesia is also working on the construction of new coal-fired power plants to meet rapidly increasing electricity demand (Enerdata, 2015), a development likely to bind the country to this carbon-intensive technology for many decades. Various sources predict that coal will keep playing a major role in Indonesia's energy mix in the foreseeable future, i.e. (APERC, 2016).

These developments in energy policy represent a **double standard in the context of climate policy** with, on the one hand, renewables being pushed to play a stronger role in the energy mix, but, on the other hand, the role of coal not being substantially reduced.

Pledges and targets

Paris Agreement targets

Indonesia's INDC includes a unilateral reduction target of 29% below BAU emissions of GHG, including LULUCF, by 2030, plus a conditional 41% reduction target with sufficient international support. At the end of October 2016, Indonesia ratified the Paris Agreement, reiterating the pledge of 29% reduction below BAU of its INDC (Antara News, 2016). We therefore expect Indonesia's INDC, [once available](#), to reiterate the INDC pledges.

The INDC pledges apply to emissions including LULUCF. The LULUCF sector has contributed an average of 60% of total emissions over the last ten years, based on national data. By 2030, under the Indonesian Government's official BAU, emissions from LULUCF would be about one-third of GHG emissions.

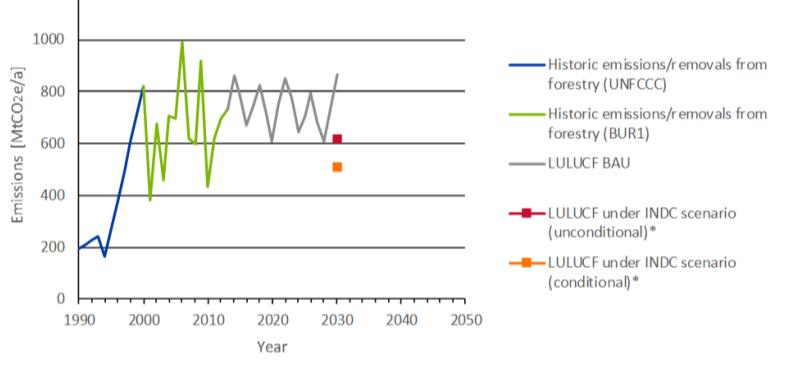
According to Indonesia's official BAU from the National Action Plan on Greenhouse Gases Emission Reduction (BAPPENAS, 2015), mentioned in the INDC submission, the country's emissions level, incl. LULUCF, is expected to increase from 1,805 MtCO₂e/year in 2020 to 2,885 MtCO₂e/year in 2030. From these BAU values, it follows that Indonesia's pledge corresponds to absolute emission levels of 1,335 MtCO₂/year unconditionally by 2020, 2,050 MtCO₂e/year unconditionally by 2030, and 1,700 MtCO₂e/year conditionally by 2030.

Copenhagen pledge	
2020 target	26% below BAU by 2020 (unconditional) incl. LULUCF [320% relative to 1990 excl. LULUCF]
Paris Agreement target	
Ratified	Yes
2020 target	26% below BAU by 2020 (unconditional) incl. LULUCF [320% relative to 1990 excl. LULUCF]
2030 target	29% below BAU by 2030 (unconditional) incl. LULUCF 41% below BAU by 2020 and 2030 (conditional) incl. LULUCF
Conditions	[230%-290% in 2020 relative to 1990; 370%-440% in 2030]
Coverage	Support from international cooperation Energy, Industry, Agriculture, LULUCF, Waste, maritime emissions "important in 2020 and beyond"
Long term goal(s)	
Long term goal(s)	None

If emissions, excluding LULUCF, would be allowed to reach BAU levels in 2030, the pledge would receive an "inadequate" rating.

The role of LULUCF emissions

In official BAU projections, emissions from land-use, land-use change and forestry are expected to vary between roughly 600 and 900 MtCO₂e/year from 2020 to 2030, at similar levels to those reported in official government documents for the period 2000 and 2012, as shown in the graph below. However, it must be noted that independent scientific estimates of deforestation rates and trends, and consequent CO₂ emissions, differ significantly from government numbers.



Emissions, including LULUCF. The BAU scenario is taken from Indonesia's National Center of National Action Plan for Greenhouse Gas reduction. Data sources: UNFCCC data query up to 2000, Biennial Update Report 1 (BUR1) between 2001 and 2012, BAU (BAPPENAS) from 2013 to 2030.

*The points "LULUCF under INDC scenario" are derived by assuming that the reductions below in all sectors are equal (29%/41%), as done for the 2020 pledge in Indonesia's First Biennial Update Report.

Under the Government's BAU scenario, emissions from all sectors other than LULUCF are projected to grow rapidly, decreasing the total share of LULUCF emissions. (See the section "assumptions" for a clarification of what is contained in these BAU values).

In evaluating the Indonesian INDC, we have assumed that the reductions below BAU are applied equally to GHG emissions excluding LULUCF on the one hand and LULUCF emissions on the other, as implied by the First Biennial Update Report. In that case, under the unconditional INDC, emissions excl. LULUCF in Indonesia could increase by roughly two-thirds from 2020 to 2030.

Alternative assumptions on the role of the LULUCF sector in achieving the 2030 target would lead to very different levels of energy and industry-related emissions in 2030, given the importance of the LULUCF sector in Indonesia's total emissions.

2020 pledge

In September 2009, the Indonesian government proposed to cut emissions (incl. LULUCF) by 26% by 2020 from BAU levels and submitted it to the Copenhagen Accord on 30 January 2010. In April 2011, Indonesia clarified that, in addition to its unilateral 26% target, it proposed a 41% reduction below BAU target conditional on international support for Nationally Appropriate Mitigation Actions (NAMAs). This was again confirmed in the First Biennial Update Report (Republic of Indonesia, 2016a).

Fair share

We rated Indonesia's INDC "medium". Assuming that emission reductions would be shared equally between LULUCF and other emission sources, the unconditional INDC would be on the border between the "medium" and the "inadequate" rating, and would be roughly in line with effort sharing approaches that focus on convergence to equal per capita emissions and equal accumulated per capita emissions. Approaches that focus on responsibility, capability and costs would require more stringent reductions. The conditional INDC is lower and would result clearly in the "medium" rating if turned into an unconditional target.

The "medium" rating indicates that Indonesia's climate plans are at the least ambitious end of what would be a fair contribution. This means it is not consistent with limiting warming to below 2°C, let alone with the [Paris Agreement's stronger 1.5°C limit](#), unless other countries make much deeper reductions and comparably greater effort. The reduction target could therefore be strengthened to reflect Indonesia's higher potential for emission reduction from the point of view of effort-sharing approaches focusing on responsibility and capability/costs.

Current policy projections

In 2030, under the current policies scenario GHG emissions excl. LULUCF will increase to 1.2 GtCO₂, about 4.4 times 1990 levels, and 70% higher than 2010 emissions. The CAT current policy projections, excluding LULUCF, are close to the conditional INDC target, whereas emissions including LULUCF are very close to those corresponding to the unconditional INDC target, but quite some way from the conditional INDC target. Emissions including LULUCF in Indonesia would also increase by about 80% by 2030 compared to 2010 levels.

The most relevant policy included in Indonesia's current policy projections is the National Energy Policy (NEP), which sets up plans for future energy supply. In February 2014, this legislation was updated to target an increase of renewable energy (not counting traditional forms of biomass) to 23% of primary energy supply by 2025 (LGS Online, 2014). The "at least 23%" renewable energy target is also included in Indonesia's INDC.

To increase its share of renewables from 6% in early 2014 (ESDM, 2014), Indonesia introduced feed-in tariffs for renewable electricity generation and a biofuel quota (CDKN, 2014). The CAT calculations thus assume that Indonesia achieves this relatively ambitious target of 23%, although further improvements of the legislative system could enhance current efforts (IEA, 2015).

However, the NEP also states that coal should still provide a minimum of 30% of TPES by 2025, of which 5 GW is from solar, 11.1 GW from geothermal, and 14.6 GW from hydropower (sum of allocated plus unallocated capacity), but also 25 GW from coal-fired power plants. According to projections in this plan, the capacity additions could get Indonesia's power sector on track to 20% renewables by 2025. It also indicates that if renewable capacity additions were to fall short of the target, gas may be used instead, as a "Plan B" (Global Business Guide Indonesia, 2016; Republic of Indonesia, 2016b).

Our current policy projections already take into account a drastic increase of primary energy due to efforts to increase Indonesia's electrification rate, which the National Energy Policy is targeting at 100% by 2020 (from current levels of 85%) and continuing economic growth, with coal and gas also strongly increasing. The planned capacity additions are already included in the scenario.

An installed capacity of 25 GW of coal-fired power plants will emit roughly 200 MtCO₂e/a, and will be responsible for a large share of the overall increase of emissions in the near future. The number reflects a share of close to 20% of total national emissions, excluding LULUCF, in 2025. Unless the coal plants are decommissioned before the end of their lifetime, they will continue to emit this amount over the next 50 years.

To supply the coal power plants with fuel, Indonesia aims at exploiting own reserves. In its INDC it also mentions that the extraction of fossil fuels contributes to land use change emissions. This is an additional negative impact on Indonesia's forests, which are already under much pressure. It is not only fossil fuel extraction that puts forests at risk: the Geothermal Law no. 21/2014 removed restrictions on geothermal power generation in protected forest areas (APERC, 2016).

Assumptions

Pledge

We use the historical data provided by the First Biennial Update Report. The BAU (both excluding and including LULUCF) scenario for Indonesia is taken from the National Center of National Action Plan for Greenhouse Gas reduction, which falls under the Ministry of National Development Planning (BAPPENAS). As the BAU emissions levels in 2030 are exactly the same as in the INDC, we assume that the pledge in Indonesia's INDC is based on the BAU. We note here that the First Biennial Update Report makes a reference to what seems to be a different BAU with even higher emissions. Without resolving this issue of conflicting baseline scenarios, we use the BAU referenced in the INDC in our assessment, in order to be consistent with that document.

The LULUCF emissions in the Government's BAU are aggregated from various components: agriculture, land use change excluding peat, peat decomposition, and peat fires. The main reason for the many fluctuations in these emissions is because the Government argues in its BAU that the emissions from peat fires will follow an oscillating trajectory (varying between roughly 150 MtCO₂e/year and 400 MtCO₂e/year), as a consequence of the assumption that peat fire emissions are influenced strongly by the El Niño cycle. Independent data sources such as the FAO have not observed this behaviour in historical data.

In the graph in the section "Assessment", we show the BAU (including LULUCF) and current policy trajectories (including LULUCF) using linear interpolation between the LULUCF emission values of 2015, 2020, 2025 and 2030. This is to enhance clarity and show an overall rate of development endorsing the official BAU LULUCF emissions. As the split between agricultural emissions and emissions from land-use is not publicly available, we assume in these graphs that agriculture grows at a similar growth rate as indicated in the 2000–2012 period in Indonesia's First Biennial Update Report.

Current policy projections

We calculate the impact of the renewable energy target for Indonesia, including the updated target. Notably, the scenario for Indonesia includes a shift in fossil-fuel use from oil to the cheaper, but more polluting, coal, with its share in energy demand roughly doubling by 2035. We harmonise these energy-related emissions to the 2000–2012 energy-related emissions time series from the First Biennial Update Report. We then add process CO₂ emissions from the BUR1 and non-CO₂ emissions from the US EPA projections on non-CO₂ GHGs and harmonise this series to the equivalent 2000–2012 series from the BUR1, to construct an overall reference level for emissions excluding LULUCF.

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