

# Emission Reduction Targets, Energy Security and the Paris Agreement Goals: *A Sustainable Solution Or An Illusory Promise?*

**Dr Ted Christie, 18 June 2022**



## Disclosure Statement

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**KEY WORDS:** Paris Agreement; Glasgow Climate Pact; emission reduction targets; net zero emissions; phasedown; coal; renewables; energy security; power systems; dispatchability; predictability; equity; sustainable development; SDG13; multi-objective analysis.

*“Currently, the Earth is already about 1.1°C warmer than it was in the late 1800s, and emissions continue to rise. To keep global warming to no more than 1.5°C – as called for in the **Paris Agreement** – emissions need to be reduced by 45% by 2030 and reach net zero by 2050”*

*[Net Zero Coalition United Nations \(2022\)](#)*

*“The [Paris Agreement is a landmark](#) as it is a legally binding international treaty on climate change: For the first time, a binding agreement brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects”.*

*[United Nations Framework Convention on Climate Change 2022](#)*

A significant outcome of the Paris Agreement was for obligations to be imposed on all countries to undertake measures for managing the risks and impacts of global temperature rise. All countries were required to prepare, communicate, and review emission reduction targets in their *Nationally Determined Contributions* (“NDCs”): Nonbinding targets, set and pledged by themselves, that represent their best efforts they intended to take.

However, to date, [commitments by governments for reducing GHG emissions](#), in their climate pledges/NDCs fall far short of what is required: -

*“Current national climate plans,  
taken together for all 193 Parties to the Paris Agreement  
would lead to a sizable increase [in emissions] of almost 14%.”*

## 2030 Emission Targets: *The Glasgow Climate Pact Challenge*

A challenge for climate action and support emerged at COP26 with the *Glasgow Climate Pact*. Nearly 200 nations agreed to adopt the Pact.

Article 29 of the Pact called on “*all countries to revisit and strengthen the 2030 targets as necessary*” in their NDCs by the end of 2022, to align with the Paris Agreement temperature goal. This timing is relevant given that COP27 is to be held in Sharm el-Sheikh, Egypt in November 2022.

*The Glasgow Climate Pact comprises a set of international negotiated and agreed policy commitments by the Parties to the UNFCCC and the Paris Agreement to promote the achievement of their objectives and **formally, is not legally binding.***

*The Paris Agreement, as a binding agreement on all nations, prevails in decision-making to meet its emission reduction goals for 2030 and 2050. The Glasgow's Pact's agreed policy commitments become a relevant consideration to aid the interpretation of Paris Agreement Articles that address climate action.*

Article 36 of the Glasgow Climate Pact also called on Parties to adopt policies to transition towards low-emission energy systems “...including accelerating efforts towards the **phasedown** of unabated coal power and phase-out of inefficient fossil fuel subsidies...”

The first known use of the term “*phasedown*” was 1958. The plain meaning of “**phasedown**” is defined in the [Merriam-Webster Dictionary](#)

As “a gradual reduction (as in operations or size):  
a slowing down by phases”.

**Comment:**

*The **acceptance of a phasedown of coal** in the Glasgow Climate Pact at COP 26 represents the very first time, in the long history of COP, that China, India, Russia, and other countries that use coal actually talked about a phasedown of coal... “to phase-out, you first have to phasedown”.*

## Responding to the Glasgow Climate Pact Challenge

*"The **energy sector** is the source of around three-quarters of greenhouse gas emissions today and holds the key to averting the worst effects of climate change. Replacing polluting coal, gas, and oil-fired power with energy from renewable sources, such as wind or solar, would dramatically reduce carbon emissions."*

*The outlook in 2022 now appears to be one of optimism towards accelerating to a **transition** that matches the scaling down of fossil fuels with the scaling up of clean energy.*

**But there are potential obstacles in accelerating to a clean energy transition that must be understood and effectively addressed for emission reductions: -**

- (i) Without a national plan, policy, or strategy on how to implement emission targets in climate pledges–NDCs into action, in order to achieve the Paris Agreement goals, *there is a risk that emission reduction targets that are pledged could prove to be an “**illusory promise**” i.e. a promise made which is uncertain, indefinite, vague or impossible to fulfil*
- (ii) Uncertainty over both dispatchability and affordability of power systems and their impacts on the community, business, and industry continues to be a significant source of global concern. *As a result, national plans for reducing emissions have not always resonated with concerns held over the reliability and affordability of power systems.*
- (iii) From the time the Kyoto Protocol came into force, the focus on national plans for climate action was placed on emissions reductions - as well as choice of power systems – relative to the *socio-economic and cultural impacts* associated with emission reductions.
- (iv) in terms of current pledges-NDCs for emission reductions, the integration of equity, sustainable development, and energy security is the elephant in the room for preparing national plans for climate action.

A problem-based pathway for national plans, based on the framework of energy security and sustainable development, is needed to achieve the Paris goals.

## The Cornerstones for a National Plan to Achieve the Paris Goals

### 1. The Energy Security Framework

The [framework for energy security](#) is based on two elements which enable operators to run a power system to supply households and businesses with the electricity they require. The two elements are inter-dependent and mutually supporting: -

- ☑ The power system must be **predictable** to keep the system balanced between supply and demand, and operating **securely** and **reliably** for consumers; and
- ☑ The power system must be **dispatchable** by having the means to maintain that balance and **secure, reliable** operation.

*Predictability and dispatchability  
make it possible to keep the system secure,  
to maintain reliable supply and to operate the system efficiently.*

**Comment:**

*Dispatchability and affordability are presently issues in Australia for “huge swathes of New South Wales and Queensland facing the threat of losing power”. There are [media reports](#) (14 June 2022) of suburbs being plunged into darkness as blackouts hit Sydney; and for millions of homes to be told to switch off appliances to conserve electricity following warnings of outages by the Australian Energy Market Operator.*

## The Cornerstones for a National Plan to Achieve the Paris Goals

### 2. Equity and Sustainable Development Framework

*“The ultimate objective of all agreements under the UNFCCC is to stabilize greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous human interference with the climate system, in a time frame which allows ecosystems to adapt naturally and enables sustainable development”.*

[UNFCCC \(2022\)](#)

Any climate action national plan, policy, or strategy must ensure that the power system relied on to achieve the country’s 2030 and 2050 emission reduction targets is made in accordance with the binding obligations imposed by the Paris Agreement.

Specifically, Article 4 of the Paris Agreement, which requires the reduction of GHG emissions, to be made “*on the basis of equity and in the context of sustainable development*”.

To effectively integrate energy security and climate action requires emission reduction targets and power systems to be evaluated in accordance with the Paris obligations for equity and sustainable development.

**(i) Equity**

Equity provides the foundation for ensuring “*fair treatment*” of all Parties to the Paris Agreement in preparing and implementing their national plan, policy, or strategy for climate action: -

*The application of equity as a fair treatment guideline,  
requires sustainable outcomes  
from climate action for reducing emissions,  
to minimise the extent  
to which environmental costs and benefits  
are shared disproportionately between all 193 Parties  
that have ratified the Paris Agreement.*

**(ii) Sustainable Development**

*The principle of intergenerational equity –  
a concept of fairness between generations –  
is the foundation for sustainable development.  
Sustainable solutions must resonate with this principle.*

There are three long-accepted dimensions of sustainability. The [UNs 2030 Agenda for Sustainable Development](#) underlines a global commitment for “*achieving sustainable development in three dimensions (or “objectives”) – environmental, economic, and social (including cultural) - in a balanced and integrated manner.*”

The three competing dimensions/objectives of sustainable development must be assessed and balanced equitably to ensure that future risks from climate change to people, economies, and ecosystems, have been effectively addressed in the national action plan, policy, or strategy.

The application of **equity** is significant for achieving a sustainable solution as it ensures the evaluation of the objectives for **sustainable development** are assessed and balanced fairly in meeting the 2030 and 2050 emission reduction goals of the Paris Agreement - and not weighted in favour of only one dimension/objective *e.g. economics*.

## **Sustainability and Climate Action at the Global Level: The UN 2030 Agenda for Sustainable Development**

The historic United Nations document “**Transforming our World: The 2030 Agenda for Sustainable Development (2015)**” is a plan of action to mobilize global efforts to end poverty, foster peace, safeguard the rights and dignity of all people, and protect the planet.

The UN 2030 Agenda for Sustainable Development has 17 **Sustainable Development Goals** (“SDGs”), one of which is **SDG 13, “Climate Action”**: Achieving this Goal is guided by Targets.

**One Target is to “Integrate climate change measures into national policies, strategies and planning”.**

**The aim is to achieve this goal by 2030.**

This target is evaluated by a prescribed “**Indicator**”:

**Indicator 13.2.1** “*is the number of countries that have communicated the establishment or operationalization of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development*”.

This indicator measures the number of countries signed on to multilateral agreements on climate change.

*“Currently this indicator does not reflect the levels of operationalization or implementation of **climate mitigation and adaption** action”.*

## **Sustainability and Climate Action at the National Level: *Multi-Objective Analysis and Sustainable Development***

Multi-objective analysis is a problem-solving pathway to ensure the integration between sustainable development, climate action and energy security. It would also facilitate preparation of national plans, policies, and strategies to reduce emissions as well as a commitment to their implementation.

*The methodology is generally accepted  
as an effective decision-making aid  
for finding sustainable solutions  
for public-sector issues*

*e.g. environment, water resources, energy, planning.*

The foundation for multi-objective analysis is to decide on a number of power system scenarios for reducing GHG emissions to achieve the Paris goal(s): *To reduce emissions 45% by 2030 - and to reach net zero by 2050.*

***A scenario is a hypothetical construction of power system alternatives to evaluate for achieving the Paris goals. A scenario could comprise one climate action option or a mix of options to reduce emissions, such as: -***

- *Replacing coal, gas, and oil-fired power with energy from renewable sources, such as wind or solar*
- *Ending fossil fuel subsidies*
- *Clean energy technology*
- *Carbon capture and storage*
- *Alternative fuels such as hydrogen*
- *Nuclear power, natural gas*
- ***Carbon offsets or carbon credits***
- ***Carbon removal technologies*** to remove CO<sub>2</sub> from the atmosphere and storing it e.g., restoring forests or degraded lands
- *A national electric vehicle strategy...*

***Multi-objective methodology requires constructing several scenarios, along a “continuum of sustainability”, by varying the mix and proportions of each element in the mix of options.***

To read more on Multi-Objective Analysis methodology, climate action and sustainable development, click on the following [LINK](#) to the author's article: *“Multi-objective Analysis Methodology and Sustainable Development: Case Study ~ National Plans, Emission Reduction Targets, Energy Security, and the Paris Agreement” (Posted 18 June 2022)*

## Conclusions

- (i) *The problem-solving pathway outlined enables a sustainable solution for energy security and climate action to be found. The solution is the foundation for a viable national plan, policy, or strategy to reduce GHG emissions, made “on the basis of equity and in the context of sustainable development” - and so complies with the Paris Agreement.*
- (ii) *There is one significant feature for preparing national plans, policies, and strategies to achieve the Paris 2030 goal to reduce emissions by 45% that needs to be emphasized.*

*That there is almost a decade to prepare and evaluate an initial national plan, policy, or strategy to achieve this goal with the appropriate methodology. Also, to have sufficient time to identify any limitations that justify revisions and updating the draft in order to implement an effective national plan, policy, and strategy for complying with the Paris 2030 goal.*