

2050 Calculator



What's happening in the 2050 Calculator community?

What a strange few months it's been since our last newsletter (we are avoiding using the term 'unprecedented')! We hope you and your families are keeping well and safe. As we all adapt to new ways of living and working due to the global Covid-19 pandemic, it has highlighted the importance of effective relationships and communication to keep projects and programmes moving forward. Thanks to the combined efforts of our dedicated community, the 2050 Calculator programme has continued to develop and grow during this period – and we are pleased to bring you the latest updates in our quarterly newsletter.

The £3M, three-year 2050 Calculator programme will run to the end of 2021 and support up to 15 countries around the world to upgrade and/or develop new 2050 Calculators. The ultimate objective is to support governments to deepen their domestic action on climate change and strengthen ambition under the 2015 Paris Agreement. Join us on [LinkedIn](#).

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The European Calculator (EUCalc)

Policy briefs and town hall debates

Driving effective sectoral policies for achieving the overall objectives of the European Green Deal (carbon neutrality in 2050, but also the protection of biodiversity) is a pressing necessity in the months and years to come. It is against this backdrop that a number of [policy briefs](#) on pathways towards a European low emission society were produced during the life of the EUCalc project that came to an end in February 2020. The briefs summarise key findings of the project with a clear policy orientation to provide practical climate change mitigation insights to both European and individual Member State decision-makers.

The overarching objective of producing the sectoral briefs was to synthesise and condense policy-relevant information from the EUCalc project's research outputs and disseminate these in a form that is both interesting and accessible for policy and decision-makers. A total of nine thematic briefs were produced with one devoted specifically to summarising each sector covered by the EUCalc model in response to the question: 'Is it possible to live in prosperity in Europe while also meeting the net-zero carbon mitigation target by 2050?'

The EUCalc model was developed to bridge the gap between analytical models (that are built by integrating climate-energy-economy) and the practical needs of decision-makers. The model provides an integrated

perspective on emissions reduction, the exploitation and conservation of natural resources, job creation, energy production, agriculture, lifestyles/ behavioural choices, costs, air quality, etc. These are brought together through a highly interactive user interface that enables real-time policy support, underpinned by comprehensive trade-off analysis. The model is built on the software platform KNIME, which enables the development of a new generation of 2050 Calculators, especially with handling of complex sectoral and inter-Member State and European Union transboundary relationships, while at the same time allowing for a high level of transparency. Following the examples of previous Calculators, the EUCalc model has been developed under the principle of co-design, driven by close sectoral expert and public consultation cycles.

A highlight of the project was a series of [town hall debates](#) across Europe, aimed at identifying the critical enabling components needed to achieve Europe's medium to long-term decarbonisation objectives. The events were deemed necessary to demonstrate that the EUCalc



[Transition Pathways Explorer](#) provides the benefit of multiple options and potential pathways for achieving net-zero targets, while minimising wider social-economic and environmental impacts. Participants at the town hall events were encouraged to use the Transition Pathways Explorer to help create their own pathways for Europe and to assess the impacts of their choices at the European and individual Member State levels, providing a unique perspective on the role and potential of the Member States, and European Union as a whole, in meeting global climate mitigation commitments.

The EUCalc project received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 730459. For the latest EUCalc developments, follow us on [Twitter](#) or sign up to our newsletter via the [website](#).

Benefits of a Calculator health check

Let's start by reminding ourselves about what a "healthy" 2050 Calculator will help countries to do. It will:

- ✓ Create 'ah-ha' moments – provide insight so countries can take action
- ✓ Start great debates – challenge fear and inertia
- ✓ Thrive in government – attract political champions to maintain momentum
- ✓ Help take decisions – to limit the impacts of dangerous climate change.

[Why should we bother with a health check on existing 2050 Calculators?](#)

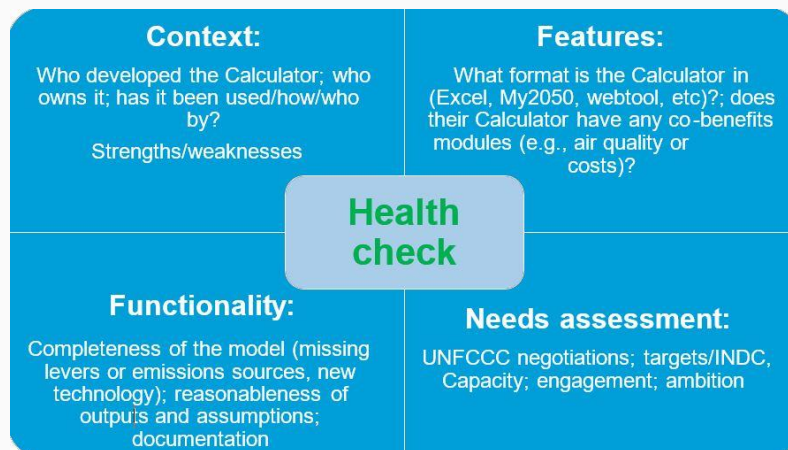
The simple answer is because it allows us to refresh existing Calculators, and to refine our approach to develop new ones. We need to understand how users interact with the Calculators – what they like, and what they find difficult.

The 2050 Calculator must 'never stay still' – if it does, it will not benefit from improvements in the science of greenhouse gas (GHG) mitigation and inventories. 'Staying still' results in going backwards. Software advances as well – ease of use, functionality and security all need to be up-to-date.

[Which countries have we looked at so far?](#)

Our team has conducted health checks on two existing Calculators – Colombia and Nigeria. Firstly, we created a simple user questionnaire which allowed us to gather feedback on the Calculator in action. Secondly, we

looked at the specific Calculators that the countries were using. We looked at a number of areas including completeness, documentation and reasonableness of output. We also ran an Excel 'QA Workbench' programme on the Calculators to identify any problems in the model. The diagram below summarises the four core areas we examined – context, features, functionality and needs assessment:



What are our findings to date?

Feedback suggests that Calculators have proved to be a useful tool for the countries who have adopted them. They have helped explore future energy and GHG emissions pathways; however, Calculators need regular maintenance to ensure that GHG mitigation assumptions are still valid, and inventory baselines are still current. For Calculators to have enduring relevance, it is not appropriate to 'develop and forget'. At times, a lack of Calculator awareness within government has limited its application. Also, it is one of several carbon management tools available to governments – the benefits of Calculator application need to be made clear to stakeholders.

We found very little evidence of quality checking – however, it is likely that quality assurance has been conducted during the development of the Calculators but not documented. It is really important for countries to document quality processes to help build trust.

A serious problem is the loss of institutional memory caused by colleagues who have developed and used the Calculator and then moved onto new roles. This is a common problem with Calculator teams as well as more general government climate change related roles. We recommend documenting the history of the development of the Calculator – even if only orally through a sound recording – to prevent knowledge from being irretrievably lost.

Calculator maintenance does not need to take a lot of time; however, if it is left undone for many months or a couple of years, it becomes a real mountain to climb, and we could all do without that.

Calculators around the world – updates

Malaysia – building a Calculator in lockdown

The Malaysia 2050 Calculator project got off to a strong start following its first training session in January. Following Covid-19 lockdown measures in the country, the project team (from the Malaysian Green Technology and Climate Change Centre) has had to think innovatively to adapt their working methods.

Instead of having consortium experts visit the country to deliver intensive training over a few days as originally planned, the Malaysian team has had to adjust their approach to suit smaller, bite-sized sessions over a longer period of time using online platforms such as Microsoft Teams. A successful online training session was held in April, with the project team and consortium technical experts joining from their homes.

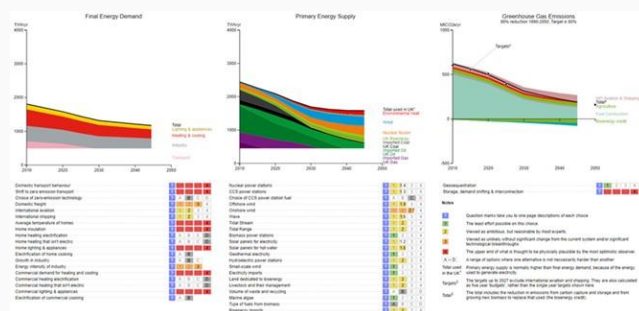
The Malaysian team is also considering how best to undertake stakeholder consultations if large meetings are not allowed in the short- to medium-term.

Ideas include holding online webinars and following up with participants one-on-one to gather feedback and inputs.

With flexible measures in place, the team is on track to develop and launch the tool to meet its original project schedule.

Nigeria – project gets the green light

The Energy Commission of Nigeria (ECN), with support from the BEIS 2050 Calculator programme team, is set to update its original Nigeria Energy Calculator (NECAL) 2050, first



developed in 2015. NECAL 2050 was significant in its own right, being one of the tools used to inform the country's NDC and Sustainable Energy for All Action Agenda (Vision 2030).

Under this new phase of programme, there are a number of objectives for an updated NECAL 2050, including the introduction of air quality, forestry, land-use issues and energy access into the Calculator – all of which will help the tool to inform upcoming government strategies on energy, land-use and long-term development/decarbonisation. There will also be an extended period of outreach and communications after the updated model is completed to ensure it is integrated across government ministries and with the wider stakeholder community.

A delegation from the UK Calculator team visited Abuja last October to scope the new phase with the ECN and support its outreach across government. The visit, which was supported by the British High Commission, Foreign & Commonwealth Office (FCO) and the Department for International Development (DfID), was extremely positive, demonstrating

that there is real demand for better and more accessible data and analysis in the Nigerian Government, academia and NGO community.

There are many ideas on how the updated model could be used to further impact policy in Nigeria, and we look forward to sharing updates, insights and innovations with you as the project unfolds.

Conferences and events

2050 Calculator International conference

[October 2020](#)

Due to worldwide travel and social distancing restrictions, we have understandably postponed our plans for a face-to-face international conference in Da Nang, Vietnam, in October. We are considering a virtual event in its place, and are hopeful that we will be able to meet face-to-face again in the latter half of 2021. Once again, please stay tuned for details.

COP26

[Postponed to 1-12 November 2021, Glasgow, UK](#)

The 2020 United Nations Climate Change Conference, also known as COP26, to be held in Glasgow, UK, under the presidency of the UK government, has been postponed to 1-12 November 2021. Up to 30,000 delegates are expected to attend the event, which is designed to produce an international response to the climate emergency.

We are still planning to be in attendance at COP26 during the revised dates and will keep you informed of developments.

About us

2050 Calculator delivery partner

To deliver the 2050 Calculator programme, BEIS appointed a Mott MacDonald-led consortium as its delivery partner. Our consortium includes [Mott MacDonald](#), [Climact](#), [Imperial College London](#) and [Ricardo](#).

The role of our consortium is two-fold – we bring technical and capacity building support to work with governments and other stakeholders as they develop and use their Calculators; and we are responsible for disbursing UK Government funding to in-country downstream partners where required to ensure sufficient resources are available. Over the next two years, we will also be working to build and connect the international Calculator community through conferences, communication channels (please join us on [LinkedIn](#)) and the [Calculator website](#). We look forward to working with all of you!

Delivery team highlights



Dr Jem Woods

Faculty of Natural Sciences, Centre for Environmental Policy, Imperial College London

Jeremy Woods is a lecturer in bioenergy at Imperial College London working on the interplay between development, land-use and the sustainable use of natural resources. At Imperial, he is a co-director of the Centre for Energy Policy and Technology (ICEPT) and a member of the Bioeconomy Platform of Climate-KIC which is dedicated to the development of advanced biorenewables. He coordinated the land/food/bioenergy and climate science components of the Global Calculator (www.globalcalculator.org). His research links environmental impact, techno-economic and sustainability assessment frameworks and is applied to policy making and industry standards.



John Watterson
Greenhouse Gas Emissions Inventories
Knowledge Leader, Ricardo

John is a greenhouse gas (GHG) emissions inventory specialist. He led the team that produced the UK's GHG inventories for submission under the Kyoto Protocol from 2002 to 2006, and he continues to implement substantial programmes of development and improvement of the UK inventory. John and his team have assessed, designed and delivered numerous national and international inventory projects; represented the UK at European GHG inventory working groups; worked with the Intergovernmental Panel on Climate Change to develop international methodologies for the estimation of GHG emissions; and developed GHG reporting software. John's international work includes assisting various countries to improve their GHG inventories, measuring, reporting and verification and transparency systems, and their institutional arrangements. John is an accredited UNFCCC GHG inventory lead reviewer and national communication reviewer. His mission is simple – to make GHG inventories better.

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