Institute for Science, Innovation and Society
University of Oxford

POLICY MEMOS

LEGISLATING FOR A JUST NET ZERO FOR MEXICO

Translation from Spanish original documents

1. Legislation on net zero emissions

2. Cities and nature-based solutions

3. Climate assessment, participation and audit

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1. Legislation on net zero emissions

National net-zero emissions targets are a widely used formula for defining a long-term vision for climate action. But there is a wide diversity of approaches to setting a net-zero emissions target, including in legislation. However, growing concerns about technological optimism and lack of transparency about the assumptions behind the targets mean that Mexico could innovate in setting net-zero emissions targets as an instrument to increase climate ambition.

SUGGESTED CITATION: Valenzuela, J.M. & Valenzuela, A. (2024). Net zero emissions legislation. Policy Memo. Institute for Science, Innovation and Society (InSIS). University of Oxford. April.

INTRODUCTION

The global goal was defined in the Paris Agreement as balancing emissions and removals of greenhouse gases to limit global temperature increase to 1.5°C.[i] [ii]According to IPCC recommendations, it is necessary to achieve a zero CO2 balance by mid-century, and a zero GHG balance in the 2070s globally. The concept of net zero emissions was originally used to describe the global climate system, so its application to entities such as countries or companies has great challenges.

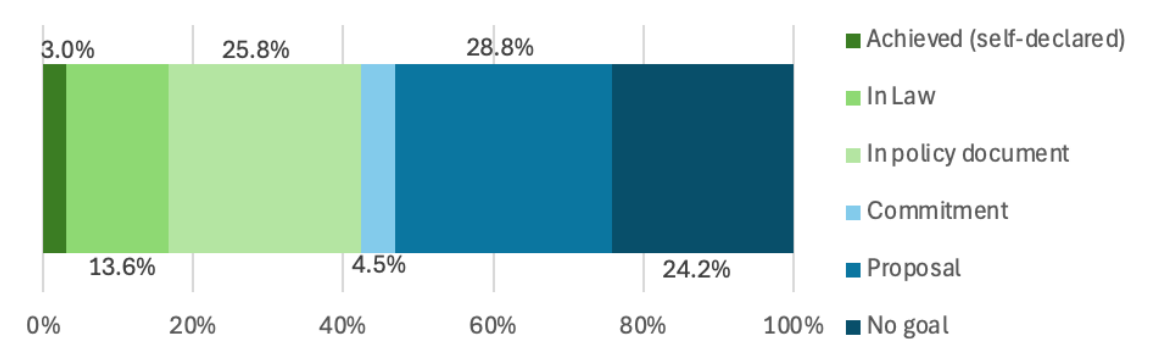
INTERNATIONAL EXPERIENCE

For a country, the commitment to achieve net zero emissions implies reducing greenhouse gas (GHG) emissions in an accelerated manner and offsetting remaining emissions by an equivalent volume of carbon removals.[iii] Based on the IPCC's 2018 conclusions on the need to achieve this CO2 balance by 2050, and zero balance for all GHG emissions in the second half of the century, several governments have started to set net-zero emissions targets.

Framework laws on climate governance provide long-term objectives, institutional structures and sectoral guidance for addressing climate change at the national level, and can therefore be a solid basis for defining what net zero emissions are for each country in line with the contribution of global targets. [iv]

By the end of 2013, a total of 149 nation governments (and the European Union) had set zero emissions targets representing 88% of global GHG emissions. These obligations could be in the form of legislation, but also as public policy commitments.[v] Mexico is the only country within the G20 that has not established a net zero emissions commitment, and therefore has the opportunity to define the definition of its commitment.

Figure 1. Types of goals



Source: Net Zero Tracker. March 2024.

Academic research highlights the need for flexible climate laws that align with local political visions on climate change.[vi] In the United Kingdom, for example, prior to the adoption of legislative reforms on net zero emissions, the Climate Change Commission (a scientific deliberative body) studied and defined the characteristics of a national target. But in parallel to emission targets, governments have also translated concerns about emissions into other areas of economic regulation.

Four years after the beginning of the adoption of this type of commitments, the concept has had an effect on other forms of economic regulation. The Oxford University Review of Zero Net Emissions Regulation has collected information on four types of regulation:

A. Standards on product promotion and consumer/customer protection.

B. Climate risk disclosure in the financial sector.

C. Rules on public procurement with obligations for suppliers.

D. Obligations for companies to establish plans with decarbonization trajectories.

The majority (15 out of 20) of the G20 members have implemented regulations in at least one of the domains. In the case of Mexico, the tax authorities have established regulations on Climate Risk Disclosure. . This regulation, known as "Disposiciones de carácter general aplicables a las emisoras de valores y otros participantes del mercado de valores", establishes that companies operating in the market are obliged to disclose these risks. This regulation shows Mexico's capacity to establish relevant regulation and shows the continuity of climate work, in the absence of the zero emissions goal.

Table 1. Secondary regulation in G20 countries

Type of regulation Adopted In development	Adopted	In development
A. Standards	9	7
B. Disclosure	9	9
C. Public Procurement	6	2
D. Transition plans	8	8

NATIONAL IMPLEMENTATION

United Kingdom. The UK's pathway began in 2019 with the amendment of the Climate Change Act, following up on the recommendations of the Committee on Climate Change (CCC). Following the legislative amendment, the government established a detailed plan or strategy, which integrates previously established short- and medium-term targets are a vision to 2050.

Along with the targets, concerns have been raised about the lack of speed in policy action, prompting parliamentary pressure to push for a more forceful response. But there has also been an attack within sections of the ruling party against the decarbonization plans. This means that the government's plan is subject to constant political conflict both inside and outside Parliament.iii

One of the most important features of the UK's target is the commitment that in 2050 the country's emissions would still be around 80 MtCO2, so that an equal volume of carbon removal would be required from actions such as direct capture of CO2 from the air for geological sequestration.

Chile: Announced its 2050 target in the Framework Law on Climate Change in 2020 and included it in its Nationally Determined Contribution (NDC) in the same year. This target was framed into law in June 2022. Chile's target stands out because the country has proposed to reduce approximately 50% of the country's observed emissions by the end of the 2010s, while the remaining emissions are offset by terrestrial ecosystem sinks, which corresponds to maintaining a level of carbon sinks equivalent to the current level.

United States: In November 2021, the Administration of President Joseph Biden presented the long-term strategy officially committing to achieving net zero emissions by 2050. Due to non-CO2 GHG emissions and CO2 emissions that could not be reduced, the strategy calls for the removal of atmospheric emissions. The volume of removals could exceed 1 GtCO2.

It is important for a country to be transparent about expectations of the volume of emissions that it is estimated cannot be avoided and the options for offsetting emissions that cannot be avoided. The level of removals proposed should not be used to justify insufficient action.

In fact, there are governments that, in recognition of their international obligations, have set targets of net zero emissions by 2050, such as Denmark by 2040, and therefore also propose that by 2050 they should have a negative or "net negative" balance, in which case CO2 removal is greater than emissions.

CONCERNS

Academics and specialist organizations have highlighted the risks of adopting a zero emissions target, including:

A. The assumption of uninterrupted economic growth.

B. Reliance on unproven technologies.

C. Mechanistic and instrumentalist view of nature.

D. Invisibility of extractivist pressures on communities and ecosystems.

These criticisms argue that the way in which countries or companies have adopted net-zero emissions targets does not reflect an attempt to systematically transform the production and consumption system. Due to the use of modelling that includes unproven technologies or without consideration of the need for material inputs that may be unmanageable for future generations.

SIGNIFICANCE FOR MEXICO

Mexico does not have a net zero emissions target. It is the only G20 country without such a target. This should not necessarily be viewed negatively; the country has excelled in complying with all international obligations to report and update targets and plans under the United Nations Framework Convention on Climate Change. But it is an opportunity, if Mexico decides to set such a target, to define an appropriate way for a developing country committed not only to decarbonizing the economy, but also to restoring ecosystems and supporting communities.

Evaluate the relationship between current targets and a zero emissions target. Mexico has a long-term goal of reducing the country's emissions by 50% compared to the emissions observed in 2000, which is likely to represent about 80% of the country's peak emissions (using 2019 as a reference). It is possible for institutions such as the National Institute of Ecology and Climate Change (INECC) to evaluate the synergies between these goals, as a basis for deciding the type of goal for the country.

Establish short- and medium-term climate action criteria. If choosing to set a net-zero emissions target, legislation can establish criteria or principles to be followed in setting a target, such as prioritizing measures

that protect ecosystems, or making transparent assumptions about technologies considered as part of any modeled target.

Strengthen scientific participation in policy formulation. The legislature has the capacity to empower - through Points of Agreement and Legislation - to structure a process of scientific deliberation with INECC and other academic institutions to contribute to existing planning instruments such as the National Climate Change Strategy, the Long Term Plan produced as part of the Paris Agreement, and the National Transition Strategy.

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APPENDIX

Technical Dimensions

Component	Alternatives	Relevant examples
Scope of Greenhouse Gases	A net zero emissions target can refer to: (a) CO2 (b) Greenhouse Gases (GHG) A net zero emissions target implies a negative CO2 balance, because the removal is done exclusively or mainly of CO2 to offset emissions of both CO2 and other GHGs that have not been abated. So a net zero GHG emissions target is more ambitious. The IPCC (2018) recommendation is to achieve, globally, a zero CO2 balance by mid-century, and zero GHG balance in the 2070s. While high-income countries have adopted targets to reach zero GHG balance in the 2040s, low-income countries have proposed targets between the 2050s and 2070s.	The United Kingdom and the European Union have set net zero emissions targets for all GHGs. Brazil, under the government of Jair Bolsonaro, proposed a target that did not clarify the scope, generating international suspicion. The LGCC target for 2050 includes all GHGs.

Year or period	The IPCC (2018) recommendation is to achieve, globally, zero CO2 balance by mid-century, and zero GHG balance in the 2070s. While high-income countries have adopted targets to reach zero GHG balance in the 2040s, low-income countries have proposed targets between the 2050s and 2070s.	China has set a target for all GHG emissions by 2060, although without defining the distinction between abatement and removals. Chile has set a target for all GHG emissions by 2050. And it has clarified that it is 50% abatement and 50% removal through terrestrial sinks corresponding to the historical level of sinks in Chile's territory.
GHG mitigation and carbon sequestration distribution	The target can specify a minimum required level or range of emissions mitigation, as well as the emissions that will not be mitigated (residual) that will be balanced with forms of CO2 removal. The most common practice has been to define a mitigation percentage (i.e., 90% or 50%) and specify the potential carbon removal pathways. It is possible to come up with new ways of defining abatement ambition, e.g., residual emissions versus historical peak emissions or residual emissions level per capita.	

2. Cities and nature-based solutions

Nature-Based Solutions in urban space can contribute to the provision of services and resilience of cities, when implemented as part of urban infrastructure investment. However, it is important to consider potential distributional impacts when dealing with measures that only have an effect on the value of services that should also be addressed by public policies. The appropriate use of these solutions requires their incorporation into the rules of spending programs and the design of urban public infrastructure and interventions.

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INTRODUCTION

Nature-Based Solutions (NBS) are strategies for working in harmony with or taking advantage of nature to solve social problems, thus promoting human well-being and the preservation of biodiversity at the local level. These solutions encompass actions such as the conservation, recovery or management of natural and semi-natural ecosystems, as well as the sustainable management of aquatic systems and cultivation areas. They also include the integration of natural elements in the design and planning of urban environments.

These actions must be based on the principle of respect for the rights, values and knowledge of local communities and Indigenous Peoples, and are designed and implemented taking into account cultural diversity and local perspectives.[vii]

UK PERSPECTIVE

Oxford University's Nature-Based Solutions Initiative report highlights the crucial role of SBNs in climate change adaptation in the UK including specific cases.

A. Sustainable Drainage (SUDS): capture and purify urban runoff water, redirecting it to natural watercourses rather than traditional sewers.

B. Agroforestry: Growing trees between crops reduces flooding and soil erosion, providing shade and shelter for livestock, and generating additional income for farmers.

C. Urban trees and green spaces: They regulate temperature and absorb rainwater in urban areas, thus reducing the risk of flooding. The establishment of green and blue spaces in Scotland also improves public health.

D. Green roofs and walls: Help keep buildings cool in summer and warm in winter, reducing surface runoff and mitigating surface flooding.

E. Pipe restoration: Blocking drainage channels in degraded pipes protects water supplies, improves water quality, and reduces flood and fire risks, while preserving carbon stores.

RECOMMENDATIONS

The five fundamental principles of NCS[viii]

Nature-based: NCS are based on human stewardship of ecosystems, avoiding their alteration beyond their natural state.

Sustainability: They promote biodiversity and ensure sustainable production of food, fiber and timber, as well as climate adaptation services.

Climate Additionality: They offer additional climate mitigation benefits that would not occur without human intervention, with long-lasting and effective solutions. In addition, they are not used to offset easily avoidable emissions.

Commensurability: They are quantifiable in terms of their impact on solar radiation and greenhouse gases, with conservative accounting to avoid double counting.

Equity: They respect the human rights and self-determination of indigenous communities, ensuring a fair distribution of benefits and ethical implementation.

CONCERNS

Although nature-based solutions may represent an additional measure to mitigate climate change, the IPCC warned about the possible unintended effects of NBS on the global south. In particular, due to the potential contribution to gentrification and the possibility that they may result in "maladaptation", especially by reinforcing inequalities by favoring groups already favored by infrastructure. [ix]

A common criticism of Nature-Based Solutions is their primary assessment from a perspective focused on human benefits, which can result in the omission of their impact on ecosystems and biodiversity. In addition, the implementation of nature-based solutions overlooks fundamental aspects of environmental justice, such as citizen participation and equitable benefit sharing. Therefore, current research highlights the importance of inclusive governance in the planning and implementation of nature-based solutions, particularly in urban settings, to adequately address the needs of all stakeholders.[x]

There are three dimensions of justice that must be considered when designing nature-based solutions in Global South contexts to prevent unwanted effects such as green gentrification and maladaptive responses arising from changes in income and demographics due to the implementation of urban greenspace.[xi]

A. Procedural Justice: principles of fairness in decision-making procedures, focusing on transparency, inclusion and participation of all stakeholders.

B. Distributive Justice: Recognition of values and needs of different social groups. Focuses on considering the identity and characteristics of communities affected by SBN.

C. Recognition Justice: Equity in the implementation of SBN, with priority given to vulnerable communities, with the purpose of mitigating undesirable effects such as gentrification and maladaptive responses.

To involve the public in the selection, various strategies can be used, such as informal activities to build relationships, surveys and focus groups to gather information, open meetings to discuss and share information, and deliberative democracy methods to form collective recommendations based on diverse opinions. In addition, the use of online platforms and social networks can facilitate participation and collaboration, while geo-visualization and participatory mapping tools can assist in making decisions based on spatial data. It is important to leverage these tools to ensure effective participation and representation of diverse perspectives in the selection process.[xii]

IMPORTANCE FOR MEXICO

The country's public policy framework has budgetary funds and Development Banking programs for urban investment, including the Contribution Fund for Social Infrastructure (FAIS), among others. These programs

have catalogues that can reflect the importance of nature-based solutions. In addition, new instruments such as Mexico's Sustainable Taxonomy and the Just Transition Fund proposed by SHCP can also reflect these types of projects to facilitate public and private financing.

An important example of how to integrate nature-based solutions is their incorporation, in 2024, in the new Mexican Official Standard NOM-004-SEDATU-2023, Structure and design for urban roads. The new NOM refers to the integration with the natural environment "the road should favor the adaptation and mitigation of the effects of climate change such as heat islands, floods, droughts, among others. Through the prevalence and implementation of solutions based on nature, such as green and blue infrastructure, in all cases of road design". [xiii]

Because public spending depends on specific spending rules, instruments such as a Mexican official standard can be especially important to redirect existing resources to the implementation of nature-based solutions.

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3. Climate assessment, participation and audit

Climate policy can benefit from appropriate evaluation and audit mechanisms, as well as informed public participation. This note presents a summary of the UK experience in these areas, through the role of the Climate Change Commission, the use of environmental audits, and deliberation in citizen Climate Assemblies. Although institutional experiences cannot be replicated between countries, it is important to know in more detail the characteristics of cases that are considered as a reference for Mexico.

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INTRODUCTION

Citizen participation and effective evaluation are fundamental pillars of successful climate policy. This note provides an overview of information on practices for participation and evaluation of climate policy: the operation of the Climate Change Committee (CCC) in the UK, the role of technical experts in the popular participation Climate Assemblies, and national audit systems.

ASSESSMENT OF CLIMATE POLICY IN THE UNITED KINGDOM

Under the Climate Change Act 2008 (the 2008 Act), the Government is required to set five-year Carbon Budgets, twelve years in advance, from 2008 to 2050. The Carbon Budgets set caps on the country's emissions. The Carbon Budgets are proposed by the Climate Change Committee (CCC, also created under the 2008 Act). But when approved by Parliament they become an obligation for the Government.[xiv]

The first three budgets covered the following five-year periods: 2008-12, 2013-17 and 2018-22. The fourth Carbon Budget, currently in effect for the years 2023 to 2027, has been in place since 2011, while the fifth and sixth, covering up to 2037, have also been established. This system of targets allows the government and all sectors of society to establish policies well in advance. The fulfilment of the budgets is thoroughly evaluated by the CCC during and after the corresponding period. This is why it is considered an example of institutional design to ensure public accountability.

FUNCTIONING OF THE CLIMATE CHANGE COMMITTEE (CCC) IN THE UK

Since its establishment in 2019 it has been at the heart of the country's climate policy, introducing a long-term perspective into decision-making and strengthening the credibility of climate objectives. In addition to addressing climate change mitigation, the CCC also addresses adaptation through its Adaptation Subcommittee (ASC).

The CCC has an average annual budget of £3.7 million. The majority of the CCC's resources are provided by two sponsor departments, the Department for Business, Energy and Industrial Strategy (BEIS) for mitigation and the Department for Environment, Food and Rural Affairs (Defra) for adaptation. Its effectiveness in meeting the UK's climate objectives makes it a model of interest to other countries that might consider introducing similar independent bodies into their own climate governance structures. [xv]

The CCC is composed of eight members appointed by the Prime Minister, an Executive Director, and a secretariat of about 30 people.

All selected for their technical expertise in areas relevant to climate change, it conducts detailed analyses on technological, economic and behavioural aspects of decarbonization. Through Recommendations, the CC

maintains an active dialogue with stakeholders and government counterparts. The secretariat under the leadership of the executive director has about 30 staff.

Despite challenges, such as delays in ministerial approval of new members and resource constraints in specific areas such as climate resilience, the CCC continues to adjust its membership and focus to address changing priorities in the UK's decarbonization agenda. Recently the CCC considered and proposed a 2050 net zero emissions target that was adopted by parliament.

PUBLIC PARTICIPATION

Public participation in climate policy has different aspects, the most important of which is through parliamentary democratic representation. However, there is an instrument of public deliberation that has had a great public impact, the Climate Assemblies.

Climate Assemblies

Citizens' assemblies in the United Kingdom, such as the Citizens' Assembly on Social Care, are commissioned by Parliament to address complex, controversial, moral or constitutional issues. These assemblies enable decision-makers to understand people's informed and considered preferences on these issues.[xvi]

Key features of citizens' assemblies include:

a. Representative participants: Assembly members represent the population at large.

b. Process: Assembly members go through a process of learning, discussion, and decision making.

c. Information: Evidence presented to assembly members during the learning phase is balanced, accurate, and complete.

d. Independent facilitation: The assembly is not facilitated by the commissioning organization.

Role of experts

The participation of experts in the Climate Assembly was critical to ensuring informed decision-making. This section describes how experts, including Expert Leaders and Advisory Panel members, contributed to the structure and content of the assembly, facilitating discussions on climate-related issues.

Expert Leaders: Four Expert Leaders participated in the UK Climate Assembly to provide balanced, accurate and comprehensive content on climate change. The Expert Leaders attended the assembly weekends as speakers and provided balanced responses to questions that arose during the assembly members' discussions.

Advisory Panel: The Expert Leaders' suggestions for the content of the assembly were first reviewed by the Advisory Panel, which included representatives from various sectors. This panel provided feedback on the structure, topics and speakers for the assembly.

Academic Panel: The assembly also had an Academic Panel composed of experts from different academic institutions. These panel members contributed their expertise in areas related to climate change and provided comments on the written reports for the assembly members.

Integration and Transparency

Equity and social inclusion are promoted by ensuring representation of the most vulnerable populations in climate decision-making. In the case of the UK Climate Assembly, 20% of seats have been reserved for

members of vulnerable communities. This measure ensures that the voices of those who are most affected by climate change are heard and considered in the climate policy-making process.

Integrating the need for transparency and inclusiveness in the design and implementation of environmental justice instruments, the experience of the UK Climate Assembly stands out as a model to follow. In this vein, the assembly prioritized transparency by providing public access to diverse sources of information, carefully balancing the protection of its members' identities with openness to the general public.

CLIMATE AUDITS

In addition to the CCC's assessment of climate policy, and the deliberation of the Assemblies, authorities are subject to governance and management audits. The Environmental Audit Committee (EAC) is a leading example of environmental audits in the UK. Established in 1997, the EAC operates with the support of the National Audit Office.

The main function of the EAC is to assess how the policies and programs of government departments and non-ministerial public bodies contribute to environmental protection and sustainable development. This assessment includes auditing performance in these areas. It is important to note that the scope of the EAC extends across government, rather than focusing solely on the work of a specific department.[xvii]

The report published by the United Kingdom's National Audit Office on net zero emissions (Net Zero) highlighted the need for interdepartmental coordination and the need to establish regular review points to assess the effectiveness of established policies and institutional mechanisms.[xviii] They also stressed the need to integrate net zero emissions targets into departmental plans and ensure the development of key skills to achieve these targets.

The main recommendations were:

- Promote collective ownership: The government should encourage collaboration between different entities rather than relying only on one central agency.
- Manage risks: The Department of Business, Energy and Industrial Strategy (BEIS), along with other relevant departments, should develop strategies to address identified risks.
- Establish regular review points: Periodic checkpoints should be established to assess progress.
- Integrate targets into departmental plans: The Cabinet Office should ensure that net zero emissions targets are included in departmental plans.
- Prioritize skills development: It is critical to prioritize the development of skills needed to achieve zero net emissions.

IMPORTANCE FOR MEXICO

The National Institute of Ecology and Climate Change (INECC) has an Evaluation Coordination which includes six social advisors (mainly academics). The Coordination elaborates an evaluation that must be delivered to the chambers of the Congress of the Union, but its evaluation work is not continuous - as is that of the CCC.

The main formal difference between INECC and the CCC is the nature of the independence between the institutions, much greater in the case of the CCC than in INECC. While INECC's lesser dependence may have an impact on evaluation, it has also allowed for collaboration and strengthening of the work of the public administration.

In President-elect Claudia Sheinbaum's Document 100 Steps for Transformation, the integration of INECC as an Administrative Unit of the Secretariat of Environment and Natural Resources (SEMARNAT) has been

proposed. The necessary legal modification will also force a rethinking of the evaluation model, including the strengthening of a purely scientific evaluation instance.

In addition to the INECC, the Superior Audit Office of the Federation has the capacity to conduct audits on climate policy, especially on the implementation of the General Law on Climate Change and the six-yearly Special Program on Climate Change. These audits are of public knowledge and are part of the accountability process.

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APPENDIX

Table 1. Examples of institutions with modelling tools (in addition to INECC)

Institution	Alternatives
Unidad de Planeación Energética Instituto de Energías Renovables UNAM	Energy system modelling and advanced software for visualization and decision making.[xix]
Programa de Investigación en Cambio Climático UNAM	Models for generating regional climate change scenarios and for estimating impacts on agricultural crop yields due to climate change. [xx]
Unidad de Informática para Ciencias Ambientales y Atmosfericas UNAM	Atlas and repository of regionalized climate change scenarios.[xxi]
Escuela de Gobierno y Transformación P ublica Tecnológico de Monterrey	Models (SISEPUEDE: Simulating SEctoral Pathways and Uncertainty Exploration for DEcarbonization) to generate scenarios on sectoral decarbonization process.[xxii]
Instituto Mexicano del Petróleo IMP	Energy demand studies used by the Ministry of Energy in Energy Outlooks.

NOTES

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