ICAT
Climate Action Aggregation Tool
(Herramienta de agregación de la acción climática)

Para la acción no estatal y subnacional

24 de Mayo, 2022

Swithin Lui
NewClimate Institute

s.lui@newclimate.org
@SwithinLui

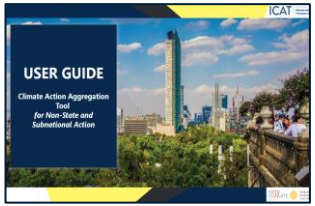
Herramienta de agregación de la acción climática (CAAT) (Climate Action Aggregation Tool)

Para la acción no estatal y subnacional

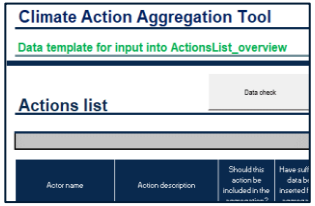
- Desarrollada en base a la Guía de acción no estatal y subnacional
- Financiada por la Iniciativa para la transparencia en la Acción Climática (ICAT)
- Desarrollada por NewClimate Institute y World Resources Institute
- Basada en Excel y de Código abierto.
- Objetivo general: obtener una mejor comprensión de las acciones de mitigación y su impacto potencial en un país o región.

Materiales de soporte y guías de CAAT
CAAT's guiding/support materials

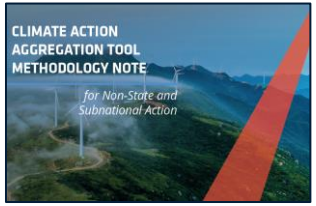
Herramienta de agregación de la acción climática



Guía del usuario

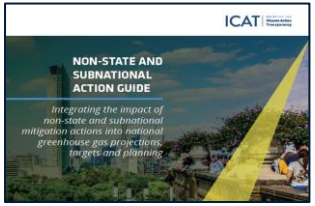


Plantilla de datos



Notas de la metodología

Video de entrenamiento



Guía de acción no estatal y subnacional

https://climateactiontransparency.org/our-work/icat-toolbox/caat/

Primary functions of CAAT

Contabilizar

Mantener un inventario de las acciones sub nacionales y no estatales en un país o región

Análisis del escenario

- Analizar el alcance de la acción sub nacional y no estatal en un país o región
  - # de actores
  - # de acciones
  - Qué acciones y qué sectores
- Identificar los grupos de actores y sectores clave

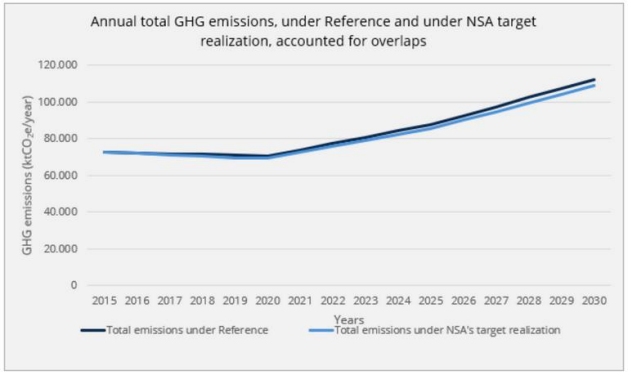
Análisis de agregación

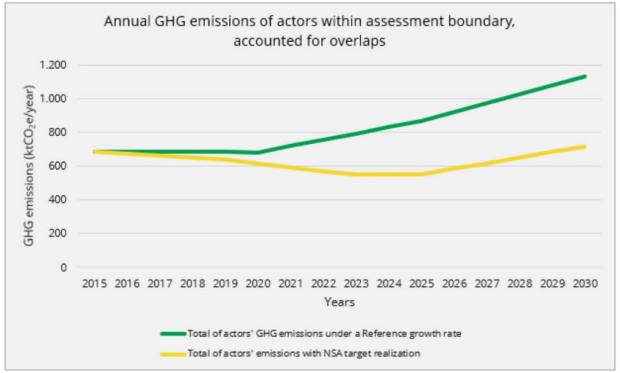
- Determinar el potencial de reducción de emisiones de las acciones sub/no estatales en un país o regiónScenario comparison
  - Análisis de solapamientos
- Integrar la acción sub nacional y no estatal en la elaboración de políticas y metas climáticas.

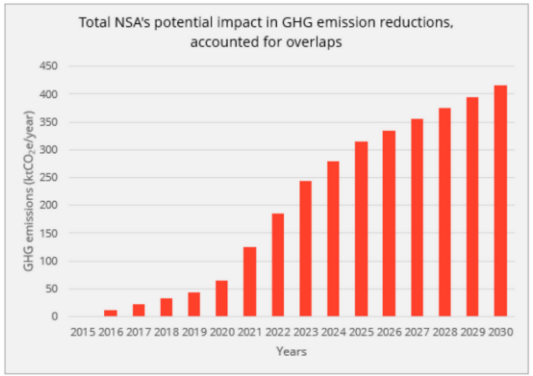
- **Amplia audiencia**
  - Actores: gobiernos, gobiernos subnacionales, ONG, miembros de la sociedad civil
  - Funciones: analistas, responsables políticos, consultores

Análisis de Colombia (Colombia analysis)

(WWF Colombia y el Ministerio del Ambiente y Desarrollo Sostenible)





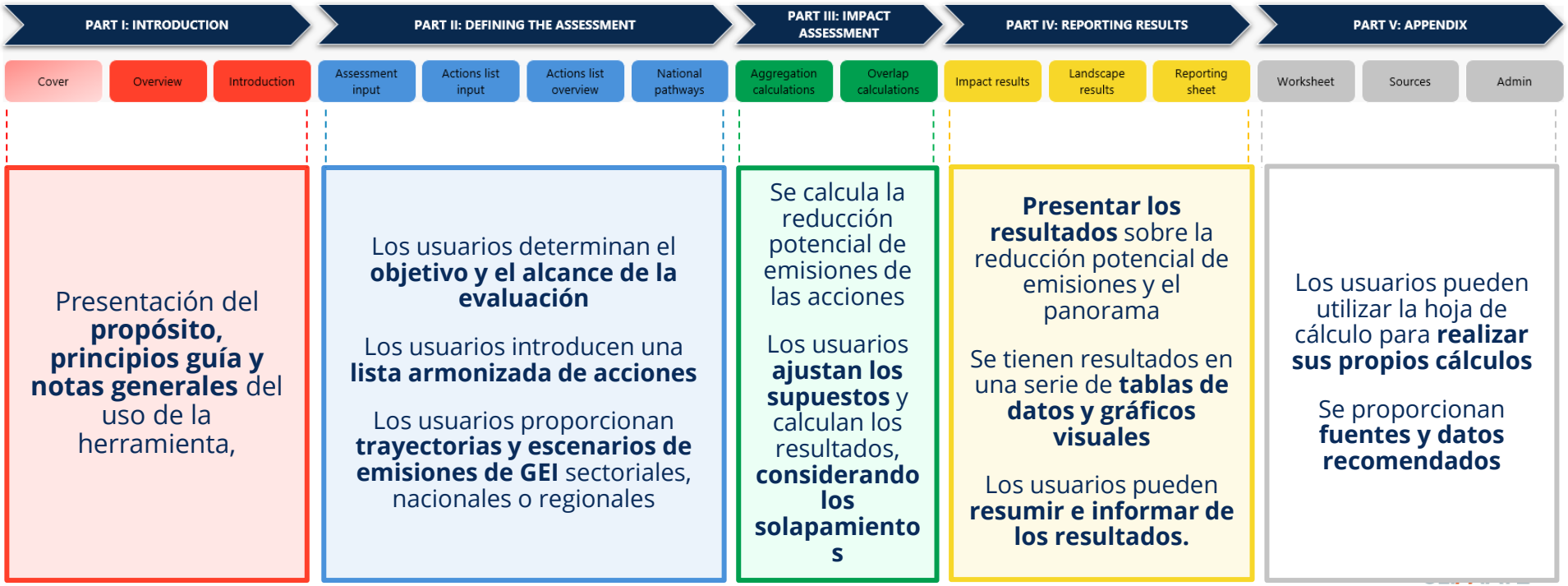


El análisis, utilizando el CAAT, mostró que alcanzar los objetivos de las empresas colombianas conduciría a menores emisiones de GEI que el escenario de referencia.

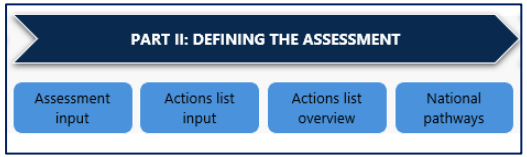
Al entrar en detalle con CAAT, esto se hace más claro.

El análisis, utilizando el CAAT, mostró una reducción anual de las emisiones de GEI de hasta 370 ktCO2e/año

Resumen de CAAT (Overview of the CAAT)



Input de la evaluación (1/2)
Assessment input



1. Definir el objetivo del análisis

Necesidad de datos limitada →

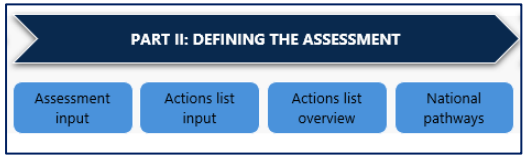
Mayor necesidad de datos→

Necesita datos completos→

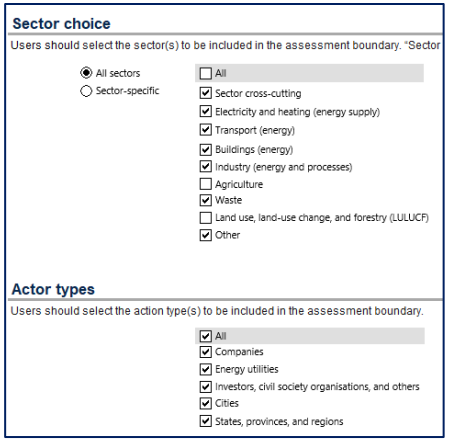
Objectives (please choose one)	
1. Landscape analysis	☐
2. Bottom-up assessment	☑
3. Top-down assessment	☐

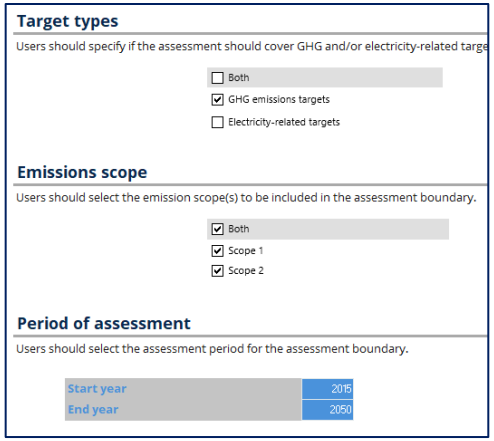
Objectives	Assessment	Data requirements
1. Understand the **landscape** of non-state and subnational effort.	The tool assesses the types and magnitudes of non-state and subnational actions in a given country, region or city ("landscape analysis"). It does not quantify any impact on greenhouse gas (GHG) emissions.	At a minimum, data on non-state and subnational action occurring in the country, region or city are required, including their GHG or electricity-related targets. No emissions data are needed.
2. **Determine the combined expected impact of all non-state and subnational actions** in a country, region, city or sector.	The tool performs a landscape analysis (Objective 1). *In addition*, it quantifies the combined potential impact of all entered non-state and subnational actions in a given country, region or city ("bottom-up assessment"). This assessment also accounts for overlaps among actions.	In addition to the above, some emissions-related data on non-state and subnational actors are needed (baseline, inventory year emissions). Emissions data for a reference scenario are also needed, in addition to a share of emissions per sector in the starting and final years of assessment.
3. Determine the **contribution of non-state and subnational actions** toward achieving short-, medium-, and long-term **climate change targets**.	The tool performs a landscape and bottom-up aggregation analysis (see Objectives 1 and 2). *In addition*, it determines the combined potential impact of non-state and subnational action on national climate pathways (nationally determined contribution or other scenario) ("top down assessment"). This assessment also accounts for overlaps among actions.	In addition to the above, emissions-related data for at least one other scenario are needed.

Input de la evaluación (2/2)
Assessment input



2. Definir el alcance del análisis



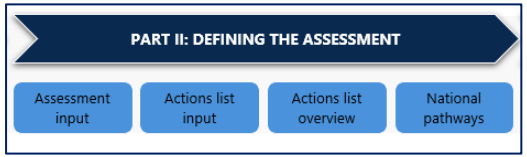


Resumen del alcance

Diferentes opciones según el alcance

Lista de Acciones y Datos (1/5)

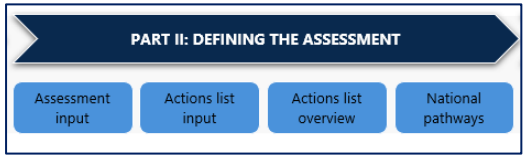
Actions List & Data



3. Ingresar la data. Un resumen del input de datos (necesarios):

Entrada de datos	Descripción
Nombre del actor	Nombre del actor de la meta/compromiso
Tipo de actor	no estatal o subnacional (regions, ciudades, empresas, etc)
Tipo de meta	¿Meta de emisiones o de electricidad?
Propósito/objetivo	¿Contabilizar o incluir en los cálculos?
Tipo de acción	¿Por una entidad individual o un grupo de individuos (ej: iniciativas)?
Sector	¿A qué sectores (o sub-sectores) se dirige la acción?
Información de la meta de emisiones /electricidad	*Revisar la lista de acciones & Datos (5/5)*

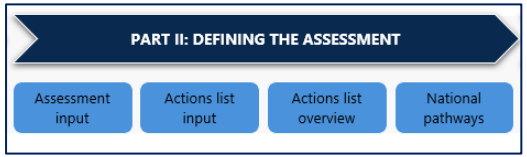
Lista de Acciones y Datos (2/5)
Actions List & Data



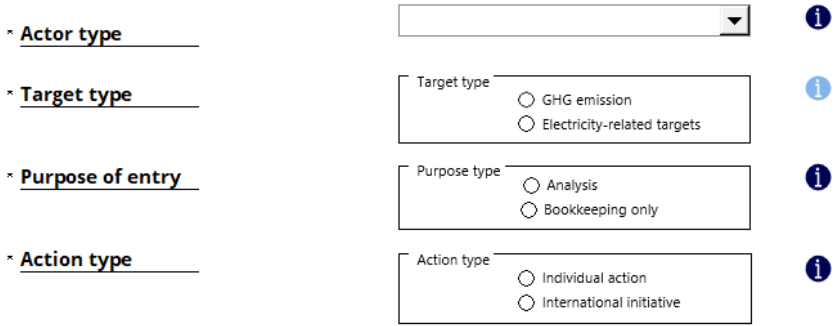
Un resumen completo de inputs de data (opcionales):

Input	Descripción
Descripción de la acción	Descripción textual y detalles de la acción para diferenciarla de las demás y mejorar el reporte
Solapamiento de jurisdicciones	Si la acción se solapa con otras en el mismo espacio (inclusión en el análisis de solapamiento)
Cobertura geográfica	¿La acción tiene una cobertura Global/nacional/regional/ciudad?
Estado de la acción	Bajo consideración, ¿son compromisos no vinculantes o legalmente vinculantes?
Referencia/fuente	Añadir enlaces y fuentes de su acción para mejorar el reporte/revisión
Evaluación cualitativa del impacto	Permite a los usuarios introducir datos cualitativos sobre los posibles impactos a gran o pequeña escala de las acciones, o sobre sus probabilidades de éxito

Lista de Acciones y Datos (3/5)
Actions List & Data



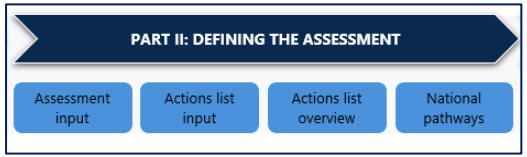
- **DOS enfoques** para el ingreso de datos
- Formulario de usuario guiado (entrada única)



Target type
Users should choose the action's target type. This tool allows only GHG emission reduction targets, in terms of a targeted percentage reduction in the target year, and electricity-related targets, in terms of the share of electricity demand decarbonized. Other types of targets first have to be converted (outside this tool) into absolute targets. For electric utilities, users should select a GHG target (Scope 1) if their base/inventory year data are in tonnes of

Guia paso a paso para ingresar los datos

Lista de Acciones y Datos (4/5)
Actions List & Data



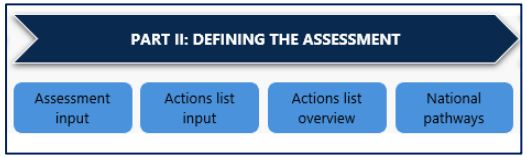
- **DOS enfoques** para el ingreso de datos
  - Base de datos (entradas masivas)

Actor name	Action description	Should this action be included in the aggregation?	Have sufficient data been inserted for the aggregation?	Actor type	Target type	Action or initiative	Sector targeted	Subsector	Subsector 2	Does the action encompass actions of smaller actor types?	Geographic coverage	Action status
Arizona	GHG Target buildings	Yes	✗	States, provinces, and regions	GHG emissions tar	Individual action	Buildings (energy)			Yes	Regional	Under consideration
California	GHG Target region-wide	No	✓	States, provinces, and regions	GHG e						Regional	Under consideration
Connecticut	GHG Target	No	✓	States, provinces, and regions	GHG e						Regional	Non-binding commitment
Hawaii	GHG Target	Yes	✓	States, provinces, and regions	GHG emissions tar	Individual action	Sector cross-cutting			Yes	Regional	Non-binding commitment
Illinois	GHG Target	Yes	✓	States, provinces, and regions	GHG e						Regional	Under consideration
Massachusetts	GHG Target	Yes	✓	States, provinces, and regions	GHG e						Regional	Non-binding commitment
Michigan	GHG Target	Yes	✓	States, provinces, and regions	GHG emissions tar	International initiativ	Sector cross-cutting			Yes	Regional	Non-binding commitment
Minnesota	GHG Target	Yes	✓	States, provinces, and regions	GHG emissions tar	International initiativ	Sector cross-cutting			Yes	Regional	Under consideration
New Hampshire	GHG Target	No	✓	States, provinces, and regions	GHG emissions tar	Individual action	Sector cross-cutting			Yes	Regional	Legally binding
New Jersey	GHG Target	Yes	✓	States, provinces, and regions	GHG emissions tar	Individual action	Sector cross-cutting			Yes	Regional	Legally binding

Copiar y pegar conjuntos de datos más grandes, siguiendo la plantilla de datos.

Comprobación de datos y opción de excluir acciones del análisis

Lista de Acciones y Datos (5/5)
Actions List & Data



GHG emissions target information												
Base year			Latest inventory year			Target year 1			Target year 2			
Year	Scope 1 emissions (tCO_2e)	Scope 2 emissions (tCO_2e)	Year	Scope 1 emissions (tCO_2e)	Scope 2 emissions (tCO_2e)	Year	Scope 1 emissions reduction (as % below base year)	Scope 2 emissions reduction (as % below base year)	Year	Scope 1 emissions reduction (as % below base year)	Scope 2 emissions reduction (as % below base year)	
2000	7,847,498	3,363,213	2005	7,062,748	3,362,213							
1990	330,061,182	141,454,792	2010	330,000,100	141,454,331	2050	80%	80%				
2001	36,519,346	15,651,148	2011	37,820,425	16,330,541	2050	80%	80%				
2005	19,910,733	8,533,171	2008	18,700,366	9,654,222	2045	80%	80%				

Electricity-related target												
Base year			Latest inventory year			Target year 1			Target year 2			
Year	Electricity demand (MWh)	Share of renewable energy (%)	Year	Electricity demand (MWh)	Share of renewable energy (%)	Year	Electricity demand (MWh)	Share of renewable energy (%)	Year	Electricity demand (MWh)	Share of renewable energy (%)	
2005	719,527	4%				2030	719,527	100%				
2017	761,496	43%				2035	761,496	100%				
2016	2,926,401	7%				2050	2,926,401	100%				
2005	7,910,041	0%				2030	7,910,041	100%				
2005	441,228	0%				2030	441,228	100%				

Meta de emisiones de GEI

- Año base
- Emisiones del año base (Alcance 1 y/o Alcance 2)
- Un año meta
- Meta de reducción en %(Alcance 1 y/o Alcance 2)

Meta relacionada a la electricidad

- Año base
- Demanda base de electricidad
- Cuota de electricidad generada por energías renovables en el año base
- Un año meta
- Demanda de electricidad (objetivo) en el año meta
- Cuota objetivo de electricidad generada por energías renovables

Trayectoria Nacional (1/3)
National Pathways (1/3)

PART II: DEFINING THE ASSESSMENT

Assessment input | Actions list input | Actions list overview | National pathways

Assessment_input check

Data check/Save

National emissions pathways

1) Scenario assessment for projections

Users should enter the scenarios they would like to compare within this assessment and choose a growth rate to be applied to the actions' emissions, after target realization.
As a minimum, users should enter the reference scenario, which will also be the default growth rate scenario used with assessment Objective 2.

Scenarios to be included in the analysis	Scenarios
Reference	CurrentPolicies
Scenario	NDCs
[enter scenarios as needed]	
[enter scenarios as needed]	
[enter scenarios as needed]	

Delete | Update name | Insert | Delete | Insert | Delete | Insert | Delete

---> *Click to document scenario mitigation policies*

Also use the reference scenario as the default growth rate scenario for actors, outside their years of target realization? ------> Yes

2) Sectoral emissions split

Update

Estimated shares of sector in total emissions

Scenario:	Historical (2015)	CurrentPolicies	NDCs			
Sector	Year: 2015	Year: 2050	Year: 2050			
Total emissions	100%	100%	100%			
Electricity and heating (energy supply)	57%	60%	49%			
Transport (energy)	5%	5%	5%			
Buildings (energy)	10%	16%	5%			
Industry (energy and processes)	10%	5%	20%			
Agriculture	3%	3%	5%			
LULUCF	5%	5%	5%			
Waste_	5%	3%	10%			
Other_	3%	3%	1%			
Data validation	98%	100%	100%			

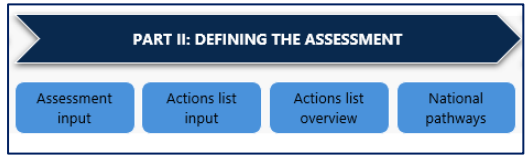
INPUT SCENARIOS OF INTEREST

- 1 escenario de referencia
- Hasta 4 escenarios adicionales (dependiendo del objetivo de la evaluación)

AÑADIR LAS CUOTAS DE EMISIÓN DE LOS SECTORES

- Cuotas estimadas de los sectores dentro de las emisiones totales (para los sectores incluidos)

Trayectoria Nacional (2/3)
National Pathways (1/3)



3) GHG emissions data input

Historical data

Users should enter the latest inventory year and the total emission values (in kilotonnes of carbon dioxide equivalent, $ktCO_2e$) in the first row recorded up to that year, starting in

	Year
Latest inventory year	2018

Update

Sectors	Units	2015	2016	2017	2018	2019	2020	2021
Total emissions	$ktCO_2e$	6,676,371	6,524,080	6,488,235	6,676,649.62			
Electricity and heating (energy supply)	$ktCO_2e$	3,805,531	3,718,726	3,698,294	3,805,690.28			
Transport (energy)	$ktCO_2e$	333,819	326,204	324,412	333,832.48			
Buildings (energy)	$ktCO_2e$	667,637	652,408	648,824	667,664.96			
Industry (energy and processes)	$ktCO_2e$	667,637	652,408	648,824	667,664.96			
Agriculture	$ktCO_2e$	200,291	195,722	194,647	200,299.49			
LULUCF	$ktCO_2e$	333,819	326,204	324,412	333,832.48			
Waste_	$ktCO_2e$	333,819	326,204	324,411.75	333,832.48			
Other_	$ktCO_2e$	200,291	195,722	194,647.05	200,299.49			

CurrentPolicies

Users should insert the total emission values (in $ktCO_2e$) of their assessment boundary for this scenario in the first row. They should then click "Update" to fill in the sector emissions. To c

Update

Sectors	Units	2015	2016	2017	2018	2019	2020	2021
Total emissions	$ktCO_2e$					6,606,984	6,577,537	6,536
Electricity and heating (energy supply)	$ktCO_2e$					3,788,633	3,777,386	3,759
Transport (energy)	$ktCO_2e$					330,349	328,877	326
Buildings (energy)	$ktCO_2e$					706,003	714,133	720
Industry (energy and processes)	$ktCO_2e$					622,944	610,771	597
Agriculture	$ktCO_2e$					198,210	197,326	196
LULUCF	$ktCO_2e$					330,349	328,877	326
Waste_	$ktCO_2e$					315,248	310,084	304
Other_	$ktCO_2e$					198,210	197,326	196

INPUT HISTORICAL DATA

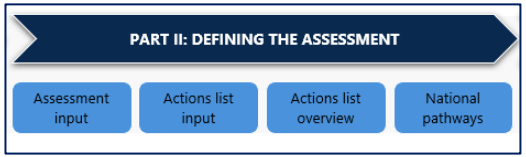
- Input de los datos históricos para las emisiones
- Emisiones sectoriales calculadas a partir de los porcentajes de las emisiones

INPUT SCENARIO DATA

- Input del scenario de emisiones
- El primer escenario es siempre el escenario de referencia
- Las emisiones del sector pueden seguir diferentes tasas de crecimiento
- Añada diferentes trayectorias proyectadas con más escenarios

Trayectoria Nacional – en resumen (2/3)

National Pathways –in short (1/3)



Un escenario de referencia de emisiones de GEI

Hasta cuatro escenarios adicionales

Datos históricos y proyecciones

Porcentajes sectoriales de las emisiones

Cálculos de la agregación
Aggregation calculations

PART III: IMPACT ASSESSMENT

Aggregation calculations | Overlap calculations

Emissions level in target years based on GHG reduction targets (tCO_2e)

Scope 1 emissions in target year 1	Scope 1 emissions in target year 2	Scope 2 emissions in target year 1	Scope 2 emissions in target year 2
0	0	0	0
0	0	0	0
0	0	0	0
3982147	0	1706634	8533171
67823436	0	29067187	72667967
13522755	0	5795466	28977332
32634067	0	13986029	69930144
18130115	0	7770049	38850247

Emissions level in target years based on electricity-related targets (tCO_2e)

Electricity-emissions in the base ye	Electricity-emissions in latest inventory year	Electricity-emissions in target year 1	Electricity-emissions in target year 2
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Calculation of deltas

S1Delta: base and inventory year (or base	S1Delta: inventory and target year 1	S1Delta: target year 1 and target year 2	S2Delta: base and inventory year (or base	S2Delta: inventory and target year 1	S2Delta: TY 1 and TY 2
-156950	0	0	-200	0	0
-3054	0	0	-23	0	0
130108	0	0	67939	0	0
-403456	-397790	0	373684	-214800	0
210011	-2076705	0	83292	-888674	0
-5001	-1349775	0	1144	-580119	0
-2900806	0	0	-1243203	0	0
-1611566	0	0	-690671	0	0

Aggregation calculations

Calculate

Assessment boundary: GHG emissions targets

- Se calculan los niveles de emisión de la meta a lo largo del tiempo
- **Basado en métodos revisados entre pares (de los autores, y otros investigadores)**
- **NO se necesitan inputs del usuario para la metodología (ver nota del método)**

Scope 1 emissions (tCO_2e)

Before base year

Scope	Target Type	Sector	Actor Type	Action type	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Scope 1	GHG emissions t	Sector cross-cu	Companies	Individual action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scope 1	GHG emissions t	Sector cross-cu	Energy utilities	Individual action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scope 1	GHG emissions t	Sector cross-cu	Investors, civil s	Individual action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scope 1	GHG emissions t	Sector cross-cu	Cities	Individual action	986876	504108	0	0	0	0	0	0	0	0	0	0	0	0	0
Scope 1	GHG emissions t	Sector cross-cu	States, province	Individual action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scope 1	GHG emissions t	Electricity and h	Companies	Individual action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scope 1	GHG emissions t	Electricity and h	Energy utilities	Individual action	6776	982	976	1005	0	0	0	0	0	0	0	0	0	0	0
Scope 1	GHG emissions t	Electricity and h	Investors, civil s	Individual action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scope 1	GHG emissions t	Electricity and h	Cities	Individual action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Cálculo de solapamientos
Overlap calculations

PART III: IMPACT ASSESSMENT

Aggregation calculations | Overlap calculations

Number of actions per actor type that are recorded to encompass actions from smaller actor types

Actor type	Instances of encompassing actions
Companies	n/a
Energy utilities	0
Investors, civil society organisations, and others	0
Cities	0
States, provinces, and regions	12

Desired change of the default overlap

Actor type		Slider and description	Reset factors / Update	The factor affects the default overlap of the following:	Factor of overlap change	Description
Energy utilities	According to the user's judgment, there is no overlap with preceding actor type. Factor: 0	Use to adjust the default overlap by using a factor. The yellow box has more information. Factor: 1 (0 – 2)	According to the user's judgment, there is double the assumed rate of overlap compared with the default. Factor: 2	Overlap of energy utilities with companies	1.00	No change
Investors, civil society organisations, and others		Factor: 1 (0 – 2)		Overlap of investors, civil society organisations, and others with companies and energy utilities	1.00	No change
Cities		Factor: 1 (0 – 2)		Overlap of cities with companies; energy utilities; and investors, civil society organisations, and others	1.00	No change
States, provinces, and regions		Factor: 1 (0 – 2)		Overlap of states, provinces, and regions with companies; energy utilities; investors, civil society organisations, and others; and cities	1.00	No change

El solapamiento se basa en la cobertura de las emisiones de un tipo de actor bajo un escenario de referencia.

Los usuarios pueden ajustar este solapamiento por defecto utilizando las barras deslizantes.

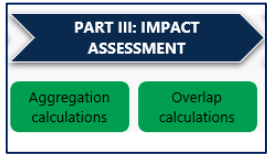
Potential impact in GHG emission reductions, accounting for overlaps ($ktCO_2e$/year)

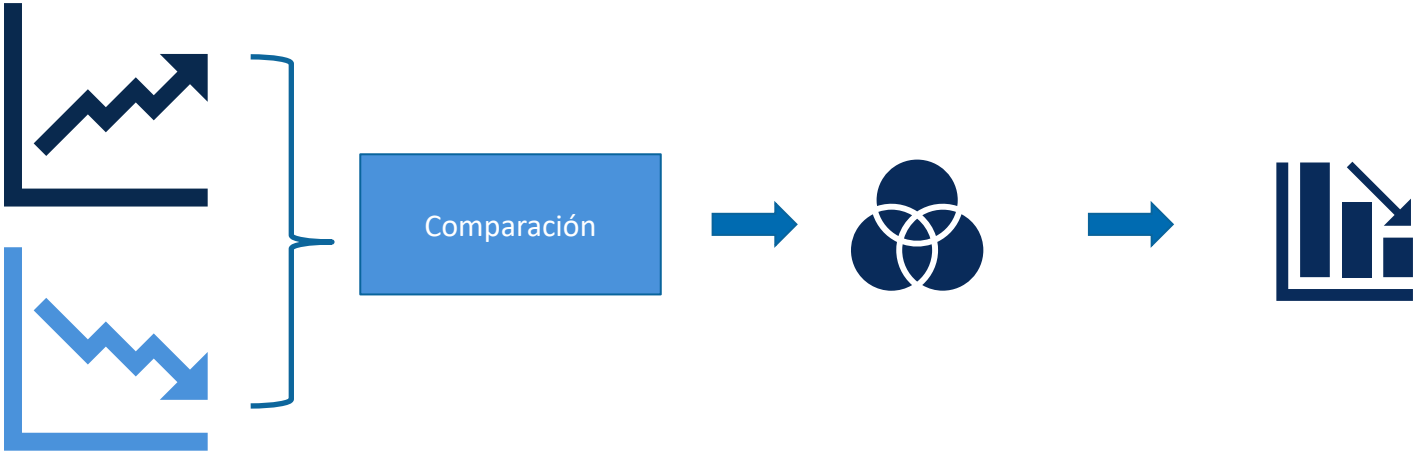
Below, the potential impact of NSAs on GHG emission reductions, compared with the reference scenario and accounting for overlaps, is presented. In the case of a negative value, NSAs are less ambitious than the reference scenario.

Scope	Target type	Sector	Actor type	Action	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Scope 1	GHG emission	Sector cross-cuttin	Companie	Individual	0	0	0	0	0	0	0	0	0	0	0
Scope 1	GHG emission	Sector cross-cuttin	Energy ut	Individual	0	0	0	0	0	0	0	0	0	0	0
Scope 1	GHG emission	Sector cross-cuttin	Investors,	Individual	0	0	0	0	0	0	0	0	0	0	0
Scope 1	GHG emission	Sector cross-cuttin	Cities	Individual	0	-841	307	5304	5871	7128	8189	9287	11045	13103	14910
Scope 1	GHG emission	Sector cross-cuttin	States, pr	Individual	0	-413	4956	21232	24899	30533	35610	40792	47852	55764	62963
Scope 1	GHG emission	Electricity and heat	Companie	Individual	0	0	0	0	0	0	0	0	0	0	0
Scope 1	GHG emission	Electricity and heat	Energy ut	Individual	0	0	-3	-6	-5	-5	-4	-3	-3	-2	-1
Scope 1	GHG emission	Electricity and heat	Investors	Individual	0	0	0	0	0	0	0	0	0	0	0

Cálculos de agregación e impacto – en resumen

Aggregation & impact calculations – in short





1) Escenario de referencia a nivel de actor
2) Escenario de realización del objetivo

Cálculo del impacto potencial (comparando la referencia con el objetivo)

Análisis de solapamientos

Impacto

Resultados de impacto (1/2)

Impact results

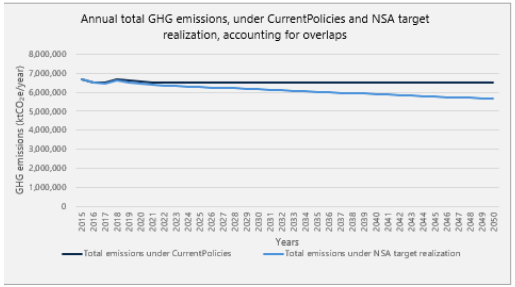
PART IV: REPORTING RESULTS

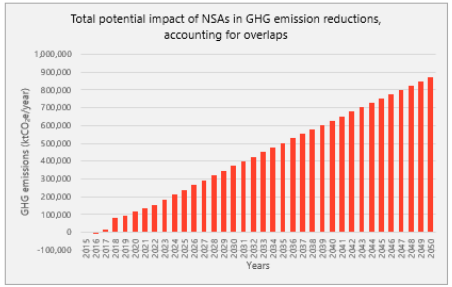
Impact results | Landscape results | Reporting sheet

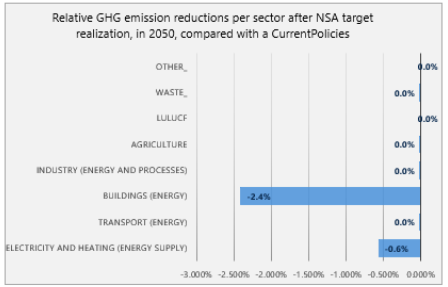
Results Calculate

Key results in graphics

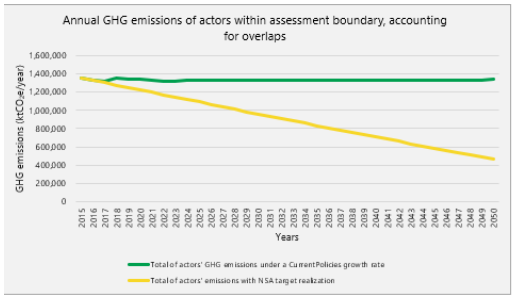
1. Total GHG emission reductions, attributed to non-state and subnational actions within the assessment boundary

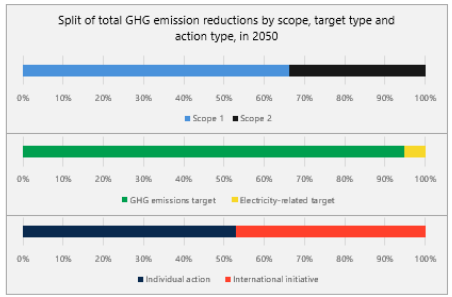


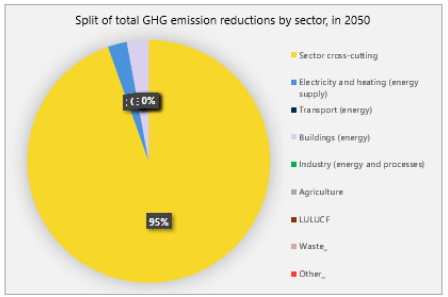




2. Breakdown of GHG emissions and GHG emission reductions

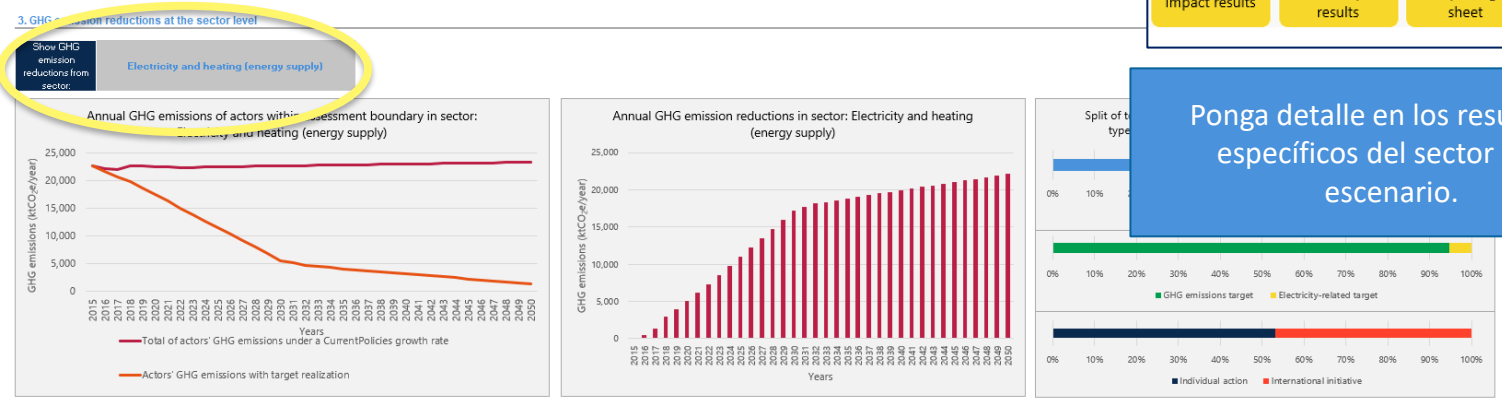


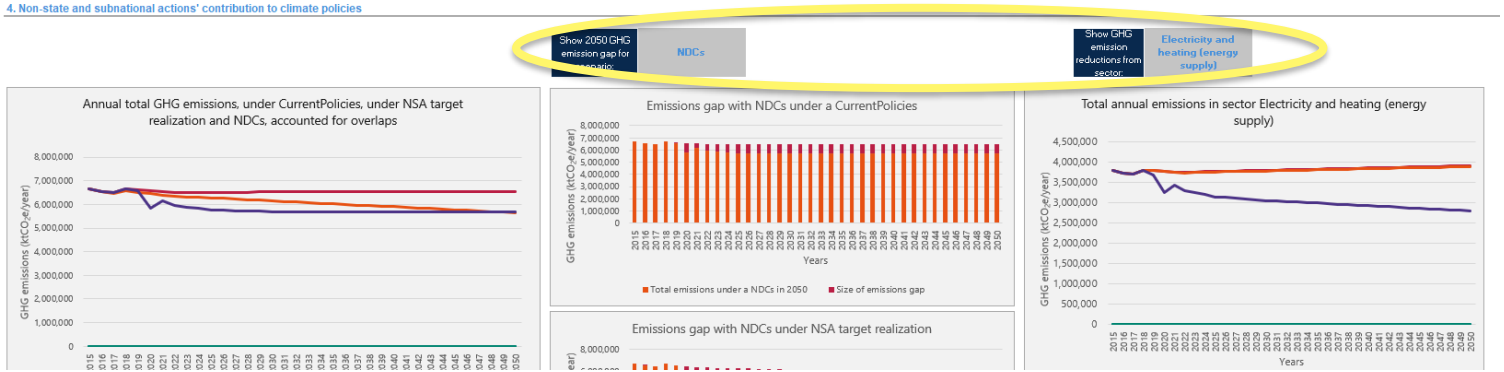




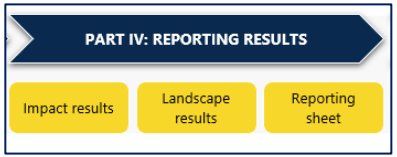
Resultados de impacto (2/2)
Impact results

Ponga detalle en los resultados específicos del sector o del escenario.

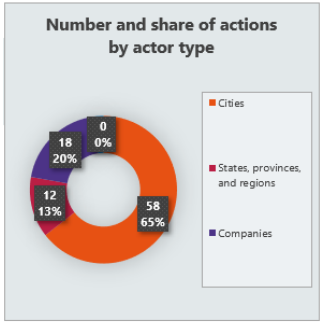


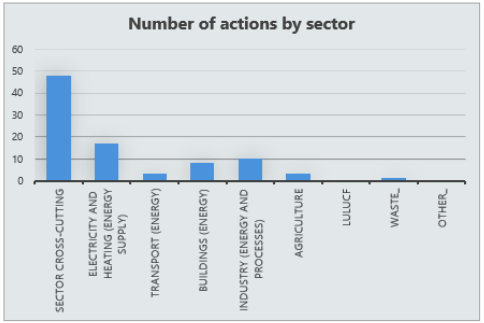


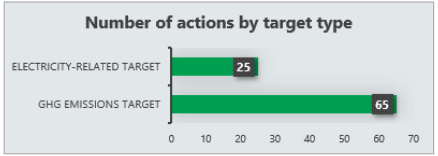
Resultados del excenario
Landscape results

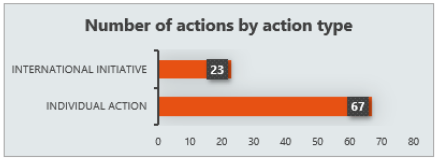


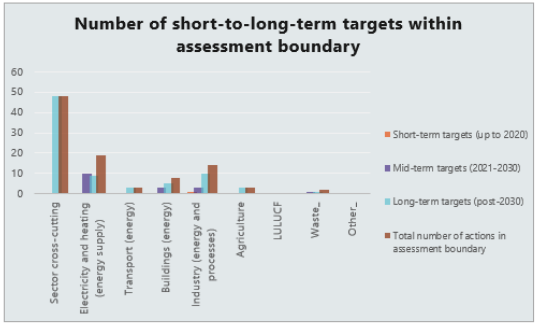
Key statistics of actions within assessment boundary







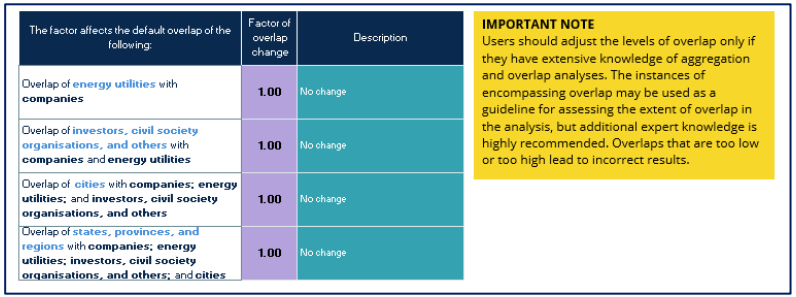




Soporte e la herramienta
Tool support

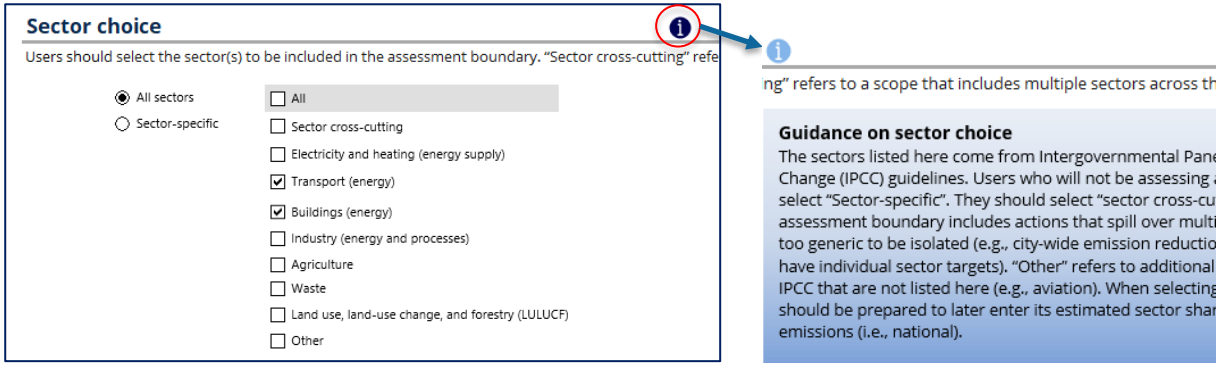
Soporte dentro de la herramienta

- Descripciones
- Notas importantes en amarillo
- Botones de información azules



The factor affects the default overlap of the following:	Factor of overlap change	Description
Overlap of **energy utilities** with **companies**	1.00	No change
Overlap of **investors, civil society organisations, and others** with **companies** and **energy utilities**	1.00	No change
Overlap of **cities** with **companies; energy utilities;** and **investors, civil society organisations, and others**	1.00	No change
Overlap of **states, provinces, and regions** with **companies; energy utilities; investors, civil society organisations, and others;** and **cities**	1.00	No change

IMPORTANT NOTE
Users should adjust the levels of overlap only if they have extensive knowledge of aggregation and overlap analyses. The instances of encompassing overlap may be used as a guideline for assessing the extent of overlap in the analysis, but additional expert knowledge is highly recommended. Overlaps that are too low or too high lead to incorrect results.



No olvidar…

- Documentos de acompañamiento (guía del usuario, video de entrenamiento)
- Póngase en contacto con los autores en la (siguiente) página

¡Gracias!

Swithin Lui
NewClimate Institute

s.lui@newclimate.org
@SwithinLui

¿Más información? ¿Preguntas?

NewClimate Institute
Sybrig Smit - s.smit@newclimate.org; Swithin Lui - s.lui@newclimate.org;

World Resources Institute
Cynthia Elliott - cynthia.elliott@wri.org; Tom Cyrs - tom.cyrs@wri.org; Neelam Singh - neelam.singh@wri.org

Initiative for Climate Action Transparency
ICAT@unops.org

All documents are available at https://climateactiontransparency.org/our-work/icat-toolbox/caat/

¿Preguntas?