

# Implications and Opportunities under CORSIA for Turkey

## Part I – Introduction

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CLIMATE CHALLENGES  
MARKET SOLUTIONS

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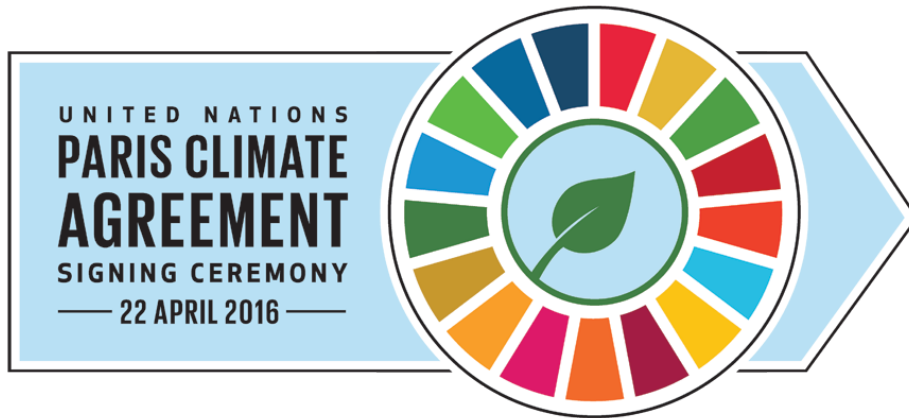
# Content

- Turkey and the Paris Agreement
- Turkey and the Carbon Markets
- Carbon Offsetting and Reduction Scheme for International Aviation

# 1. Turkey and the Paris Agreement



# Paris Agreement



According to the 2018 IPCC Special Report, limiting global warming to 1.5°C would require rapid, far-reaching, and unprecedented changes in all aspects of society.

- Adopted in December 2015 by 196 Parties to the UNFCCC in Paris
- Entered into force on 4 November **2016**
- Establishes a global warming **goal** of “**well below 2°C**” / 1.5°C
- Requires **mitigation measures** of individual countries to be expressed in nationally determined contributions – **NDCs**

# Kyoto Protocol vs. Paris Agreement

## Kyoto Protocol

- 37 countries with top down targets
- CDM and JI mechanisms to generate carbon credits via the UNFCCC
- Crediting "outside" the reduction commitment

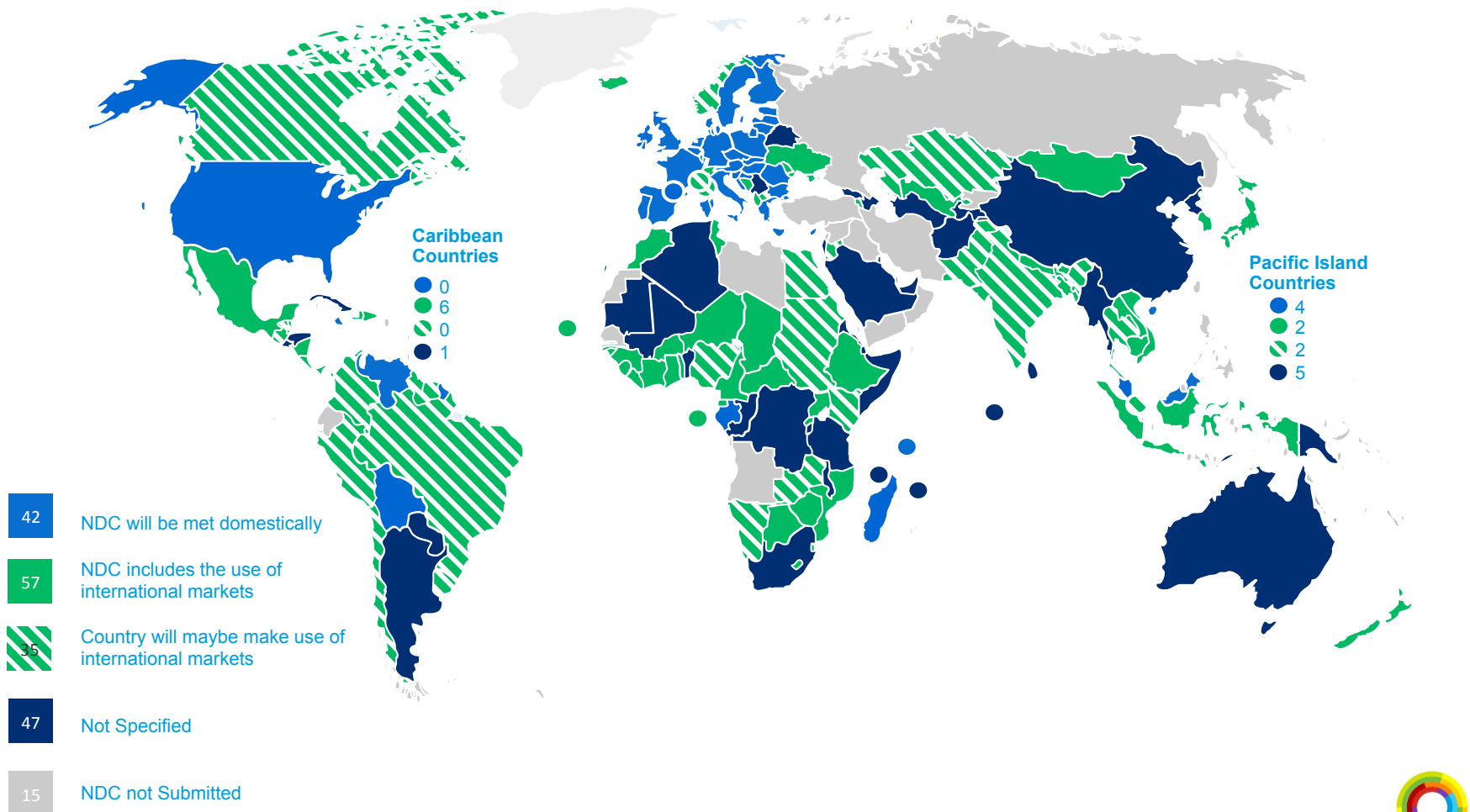
## Paris Agreement

- 192 countries with bottom up pledges
- New market mechanisms will be established under Article 6
- Crediting is expected to require corresponding adjustments

# Article 6 of the Paris Agreement

- **Article 6.2:** Accounting guidance for reporting of “internationally transferred mitigation outcomes” (ITMOs) with “corresponding adjustments”
- **Article 6.4:** An emissions mitigation mechanism to issue ITMO units for programs or activities, building on Kyoto mechanisms (CDM, JI)
- **Article 6.8:** Work programme for non-market approaches to advance cooperation that does not involve ITMOs.

# Market friendly NDCs: 92 out of 182





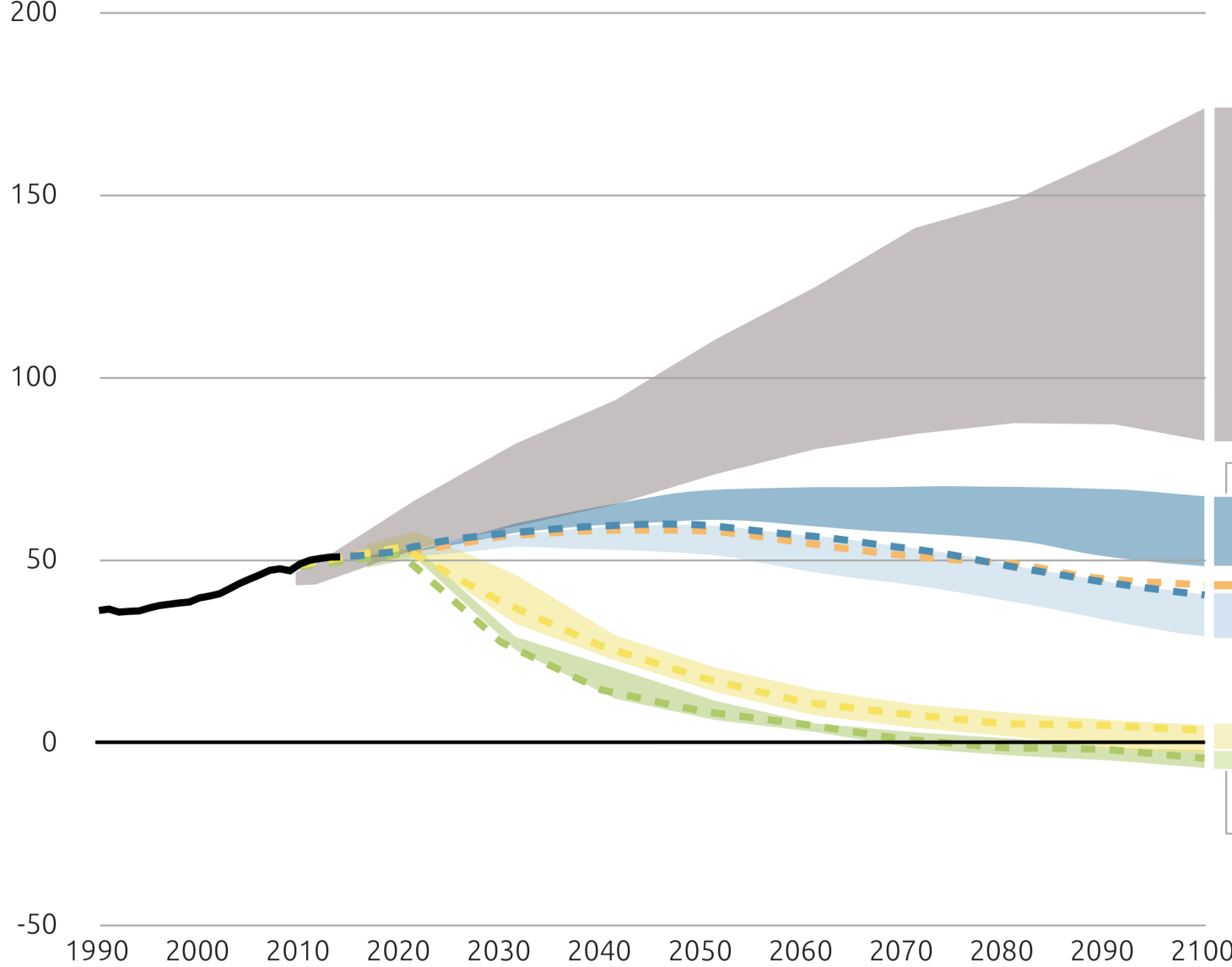
# 2100 WARMING PROJECTIONS

Emissions and expected warming based on pledges and current policies



Dec 2018 update

Global greenhouse gas emissions GtCO<sub>2e</sub> / year



Warming projected by 2100

**Baseline**  
4.1 – 4.8°C

**Current policies**  
3.1 – 3.5°C

**Optimistic policies**  
3.0°C

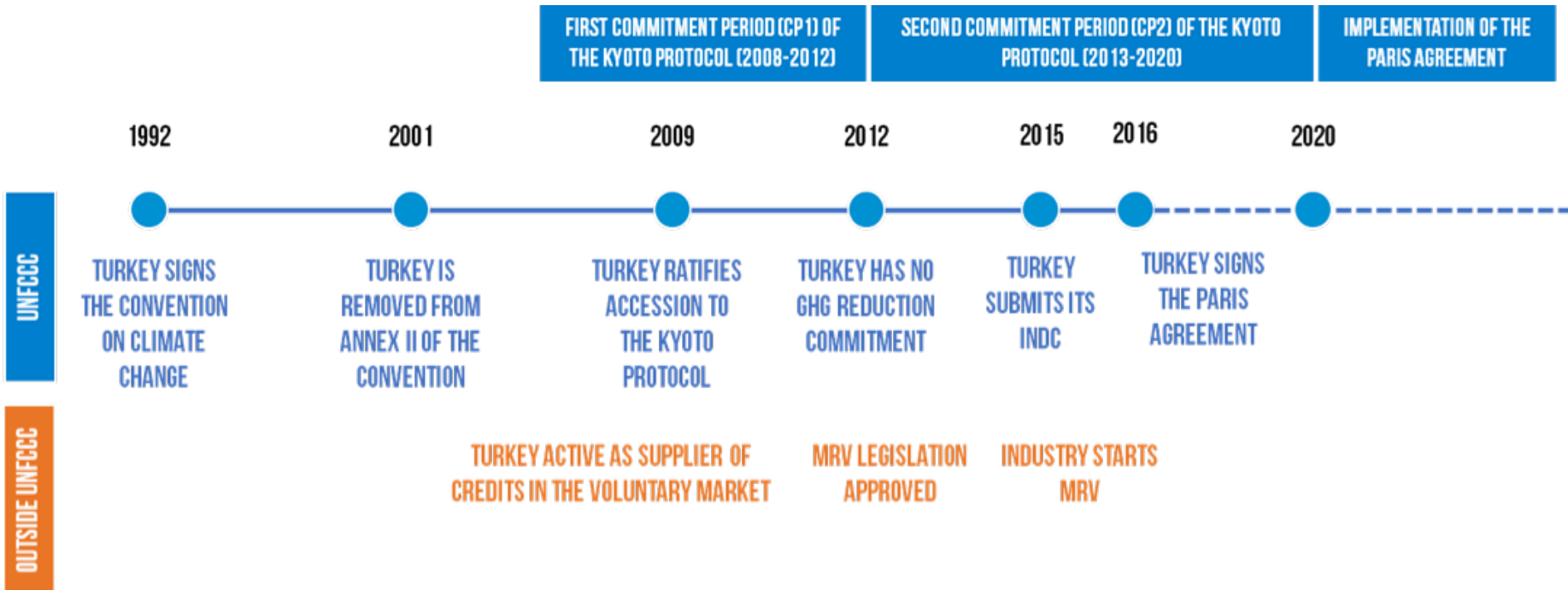
**Pledges & Targets**  
2.7 – 3.0°C

**2°C consistent**  
1.6 – 1.7°C

**1.5°C consistent**  
1.3°C

Source: Climate Action Tracker

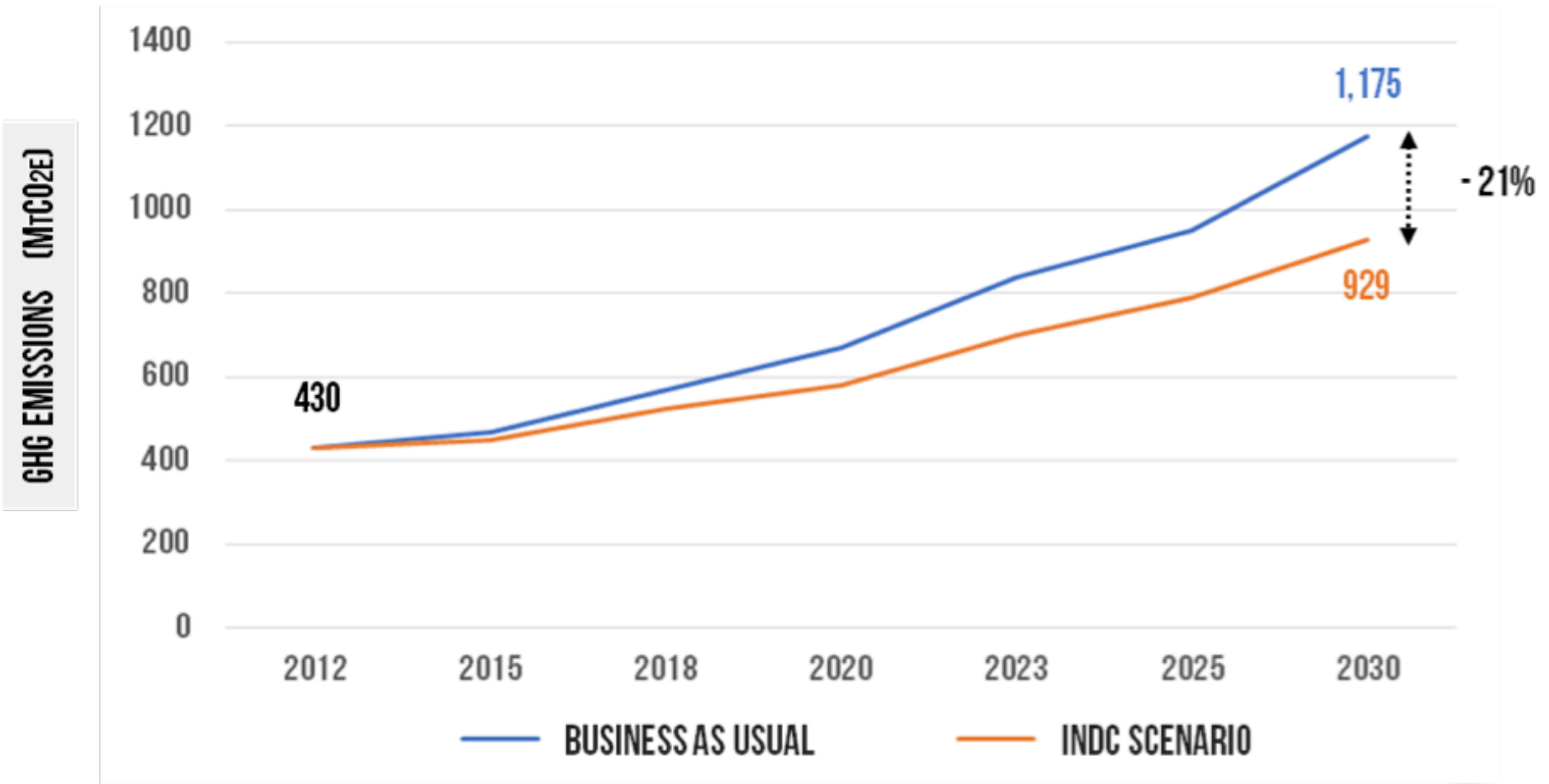
# Climate Change Negotiations and Turkey



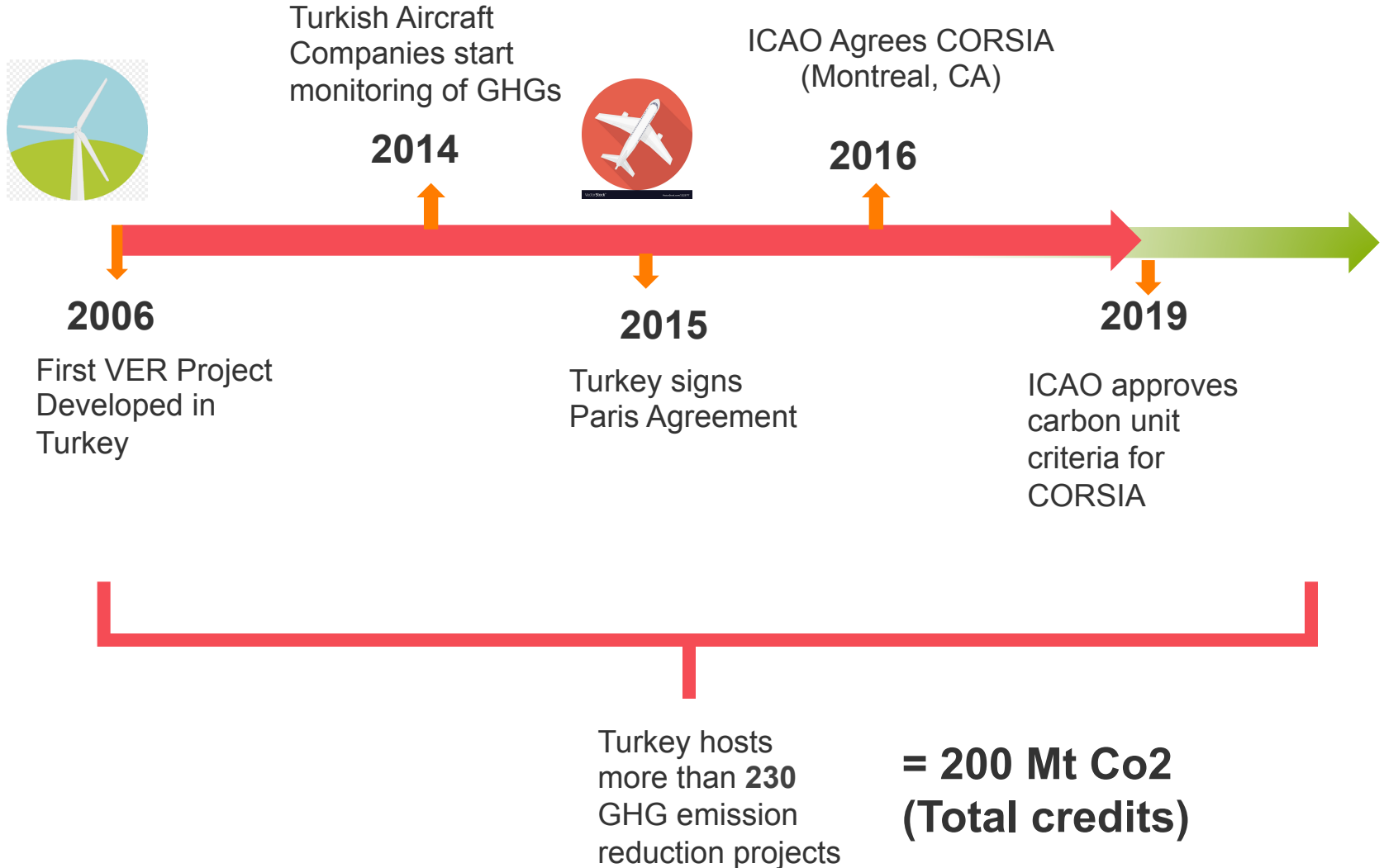
# Turkish Climate Change Ambition

- NDC of Turkey to UNFCCC:
  - Contribution: **- 21% GHG** emissions BAU level by 2030
  - Use **domestic sources** and receive **international support** (financial, technological, technical and capacity building)
- Policy tools applied to following **sectors**:
  - Energy, Industry, Transport, Buildings and Urban Transformation, Agriculture, Waste and Forestry
- Turkey has signed, but **not ratified** the Paris Agreement (yet)

# Intended Nationally Determined Contribution



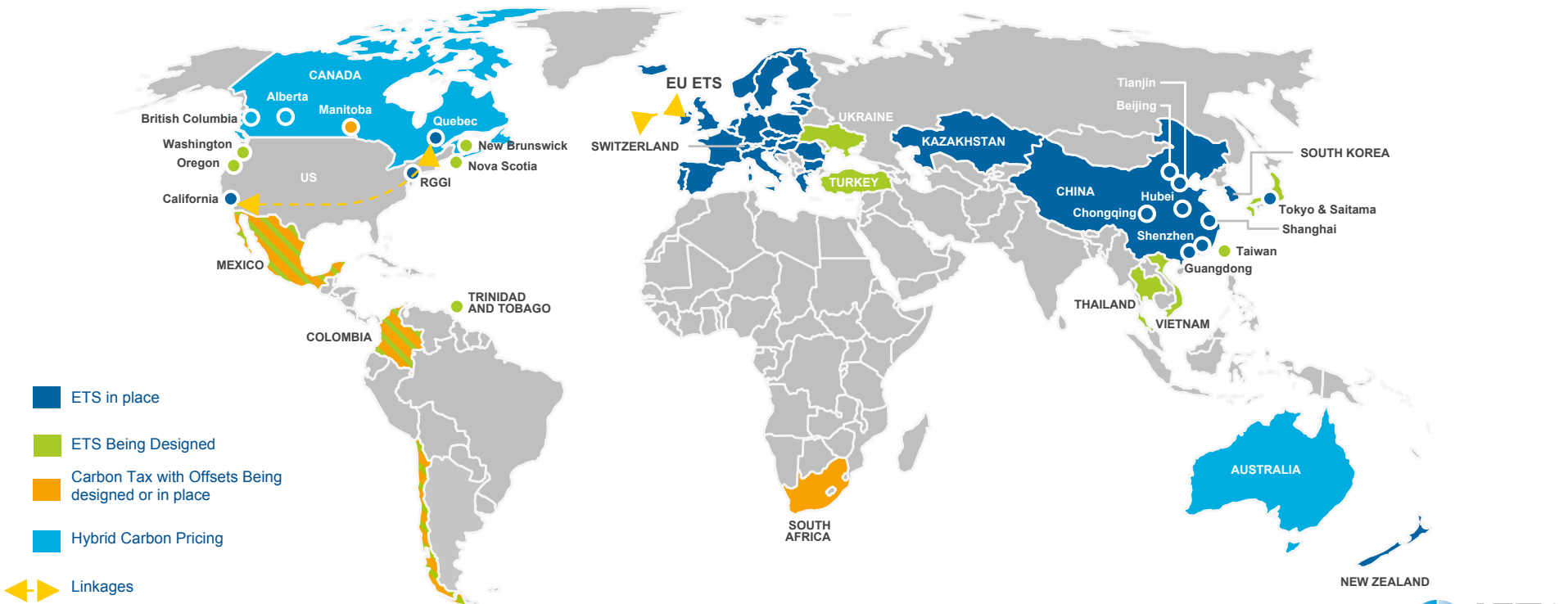
# Conjunction: Supply and Demand



# 2. Turkey and the Carbon Markets



# Compliance carbon markets worldwide



# Voluntary Carbon Markets

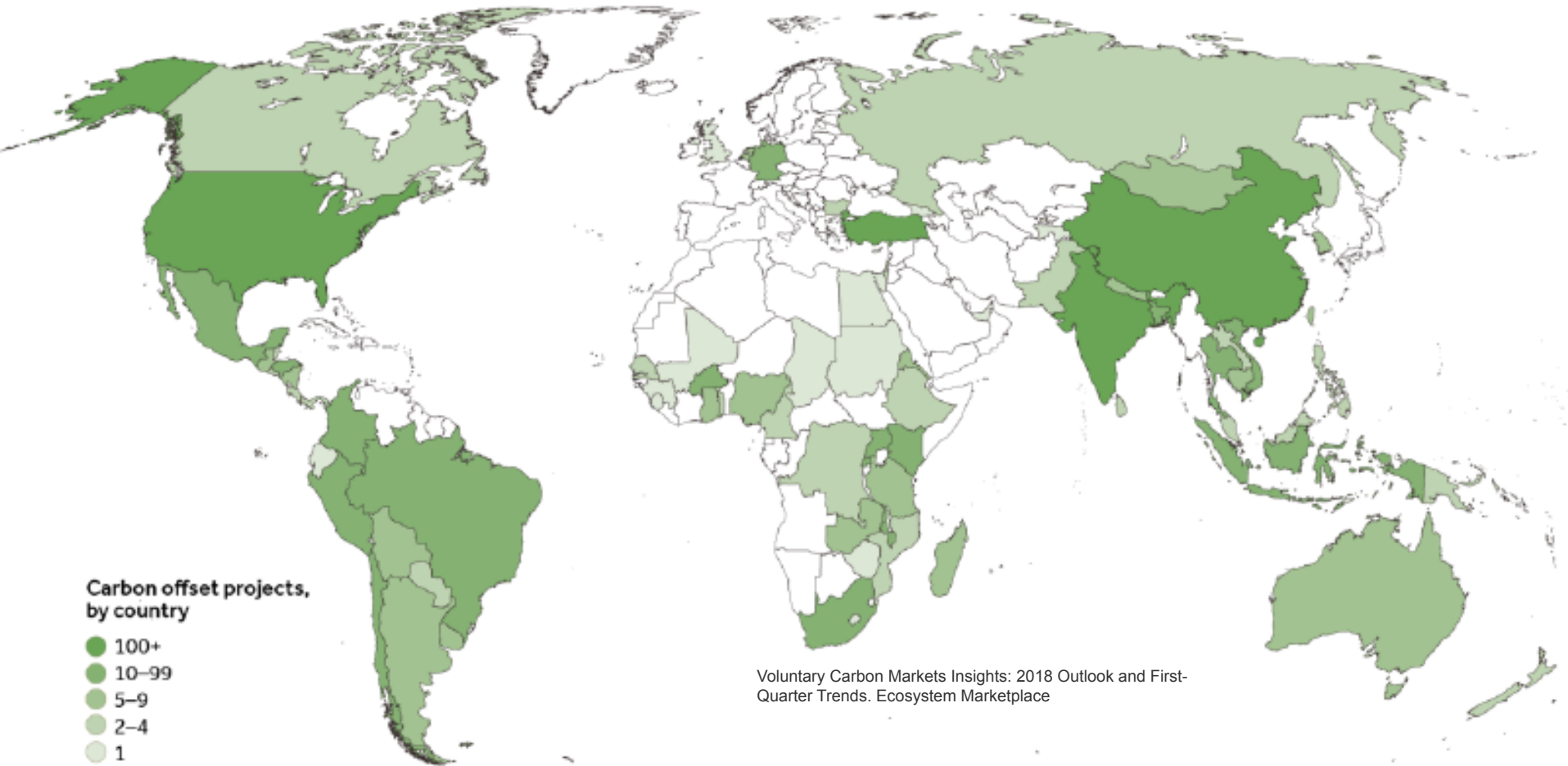
- Voluntary carbon markets supply VERs that can be used for **voluntary compliance purposes**:
  - **CSR, neutralizing individual or company carbon footprint**, etc.
- Wide range of **standards** on the market:
  - Verified Carbon Standard, Climate Action Reserve, Gold Standard
- Mostly traded **Over-the-Counter** ( $\pm 75$  MtCO<sub>2</sub>e in 2013)
- Renewable energy, forestry, landfill gas are the most common project types
- Most buyers allocated in Europe (70%) and North America (20%)
- Pricing varies widely, depending on standard and project type/location



# Value Chain of the Carbon Market



# Locations of voluntary offset projects; 2008 – 2018



Voluntary Carbon Markets Insights: 2018 Outlook and First-Quarter Trends. Ecosystem Marketplace

# Carbon Projects in Turkey

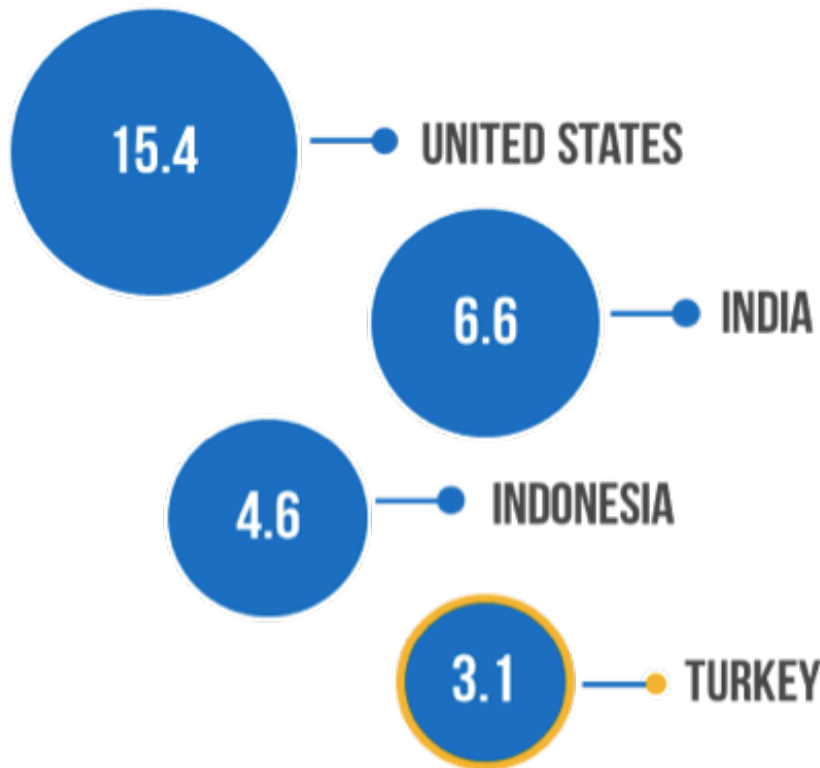
- 244 registered **projects**:
  - \* 130 under the Gold Standard and
  - \* 114 under VCS
- Mostly **hydro** power and **wind** power projects
- 39 projects are **financed by EBRD** under MidSEFF

**Table:** Overview of Turkish carbon projects by project type and installed capacities

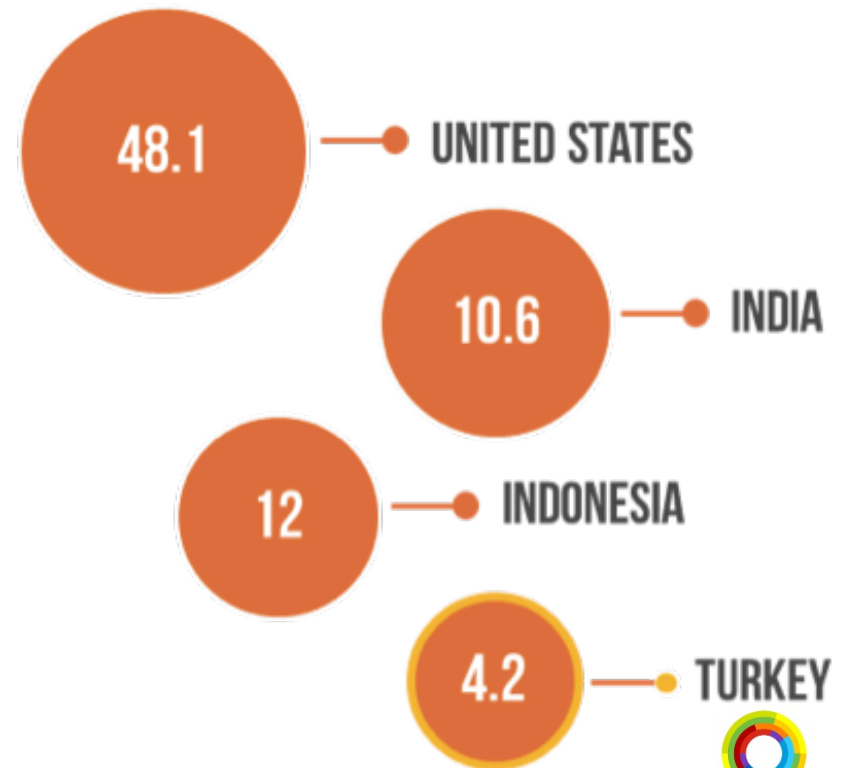
Project Type	Installed Capacity (MW)
Hydro Power	5,188
Wind Power	3,629
Geothermal Power	104
Solar Power	7
<b>Total</b>	<b>8,929</b>

# State of the Voluntary Carbon Markets

**VOLUME TRANSACTED IN 2015**  
MT CO<sub>2</sub>E



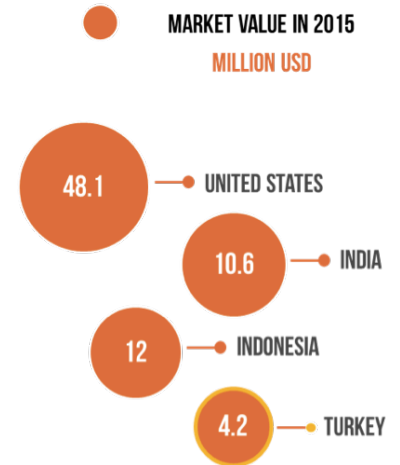
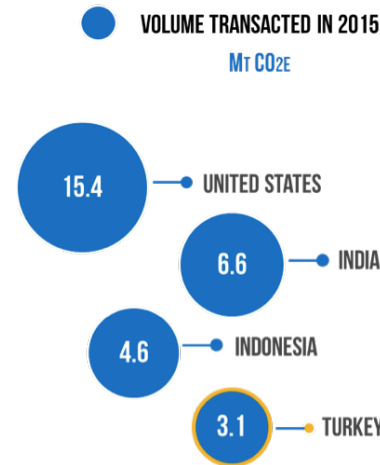
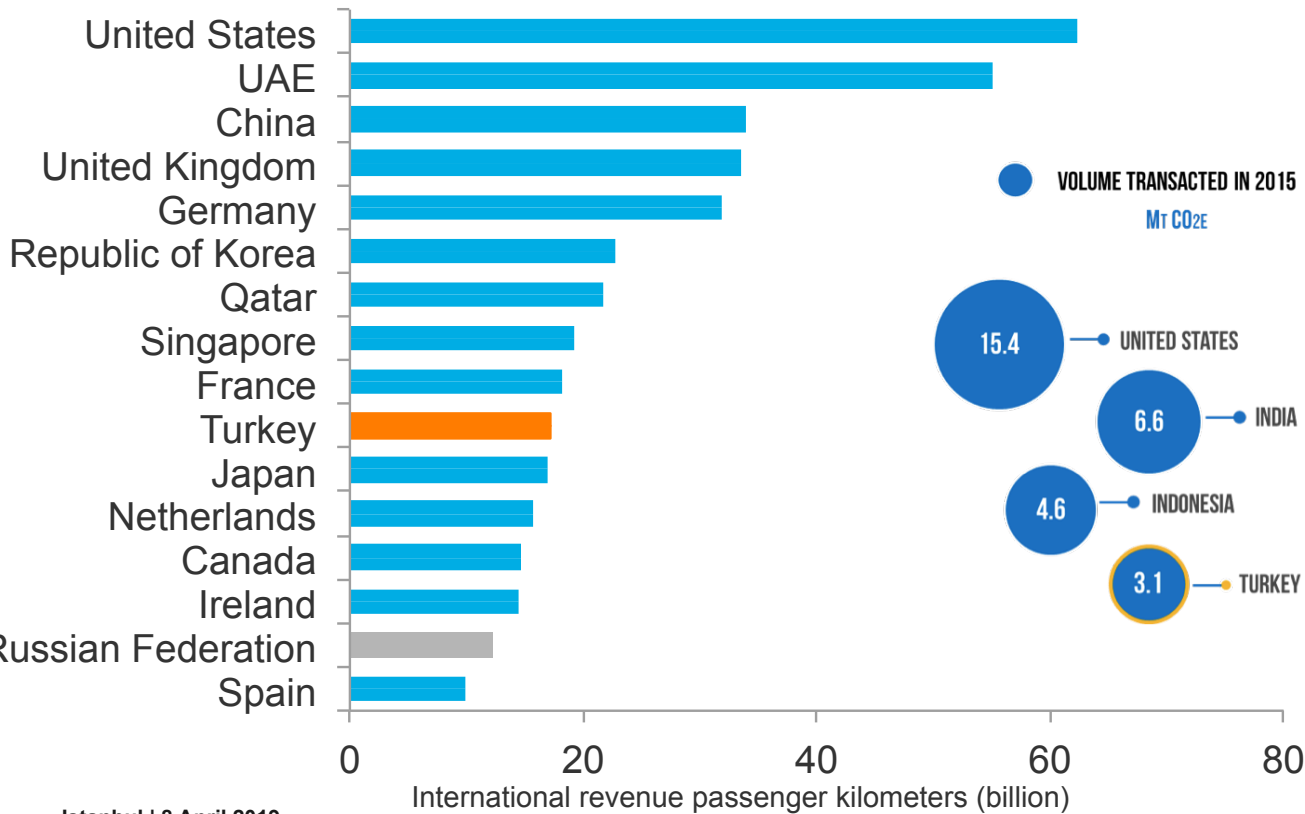
**MARKET VALUE IN 2015**  
MILLION USD



# Turkey well positioned to connect carbon projects to CORSIA

➤ **Dominant provider** of international flights

➤ **Dominant supplier** to the voluntary carbon market



# 3. Carbon Offsetting and Reduction Scheme for International Aviation



# Carbon Offsetting & Reduction Scheme for International Aviation

“**Carbon Neutral Growth**”: Target adopted by ICAO - International aviation emissions above 2020 levels will need to be offset using carbon credits

- **Scope:** 79 States, representing 76.63% of international aviation emissions, intend to participate in the voluntary phase starting in 2021
- **EUC:** The Emissions Unit Eligibility Criteria were recently agreed, along with the operationalisation of its Technical Advisory Body (TAB)
- **TAB:** will assess carbon credit programmes seeking to supply emissions reductions to the CORSIA market
- **REDD+:** Many private sector organisations are pushing for REDD+ to be eligible for compliance under CORSIA

# International Aviation Emissions Projection<sup>24</sup>

2015 international aviation emissions: **540 MtCO<sub>2</sub>** (1.5% of world CO<sub>2</sub> emissions)

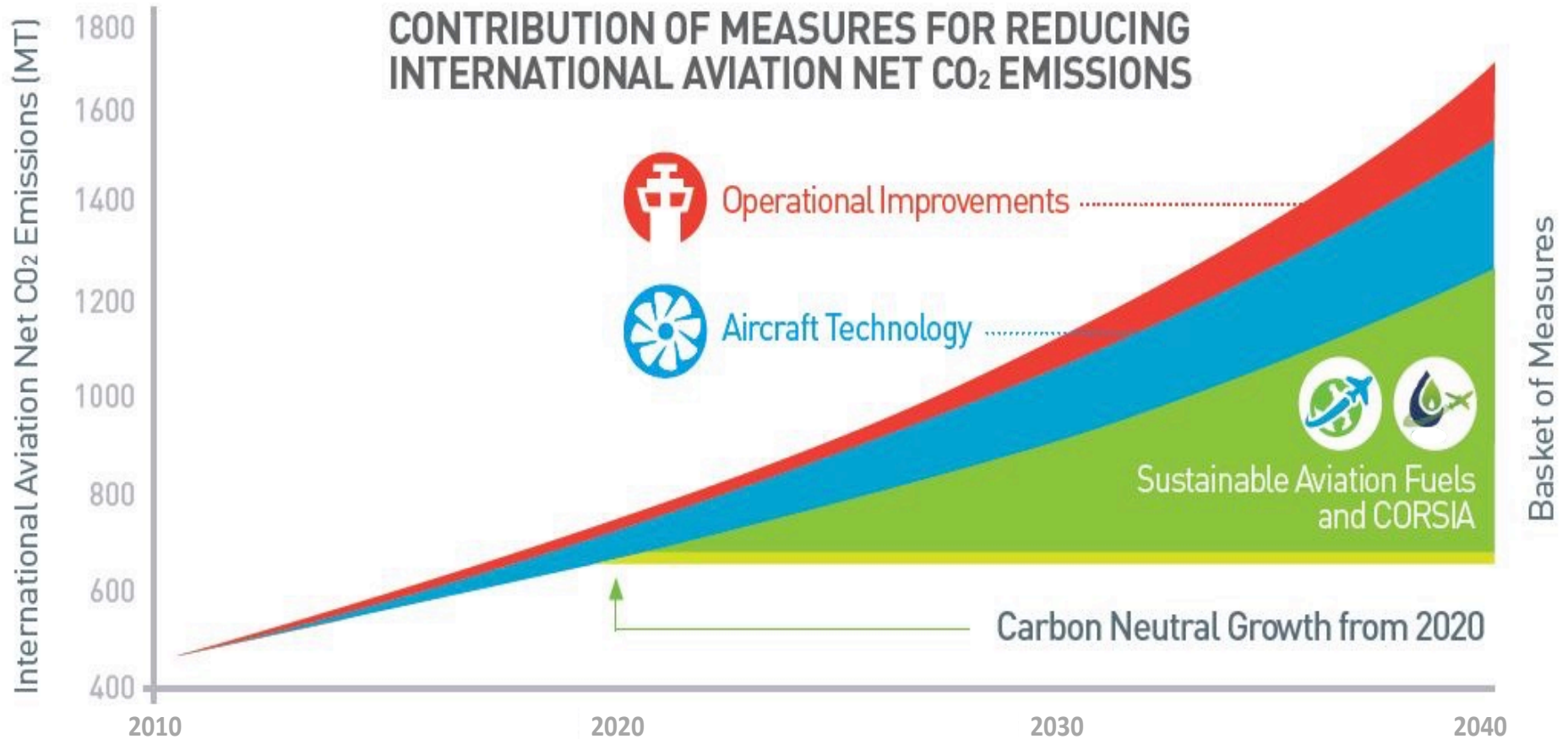


Figure: ICAO



# CORSIA: Carbon Offsetting and Reduction Scheme for International Aviation

Intended global offsetting measure regulated by International Civil Aviation Organization (ICAO)

**Requires MRV** of CO<sub>2</sub> emissions by operators on all international routes

- MRV must be in place by all international operators by 2019 for baseline measurement
- Baseline will be measured as 2019-2020 average of international aviation emissions
- Annual monitoring reports are aggregated by member states and sent to ICAO

**Requires offsetting** of CO<sub>2</sub> emissions

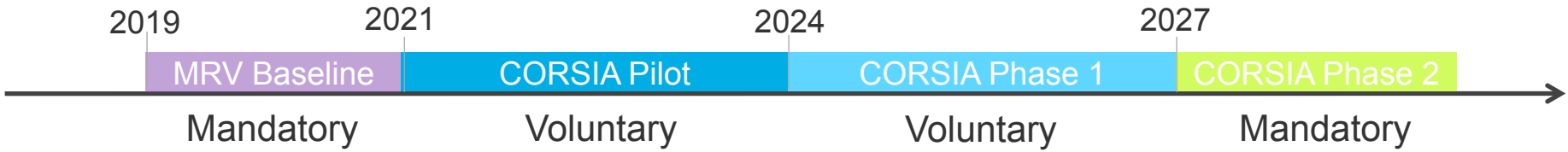
- Airline operators offset emissions from international flights above 2019-2020 baseline
- ICAO calculates offsetting requirement annually



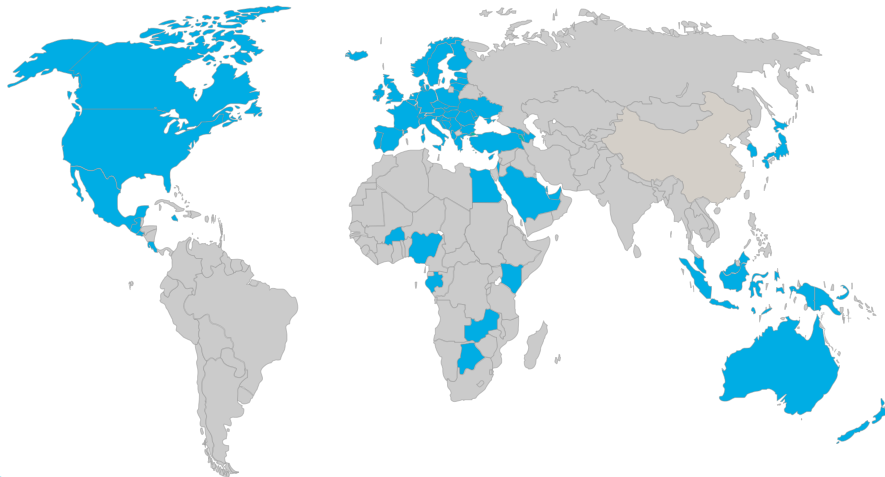
- **Phased implementation:** adoption of Standards and Recommended Practices in **mid-2018**



# CORSIA: Two Phases, Voluntary and Mandatory

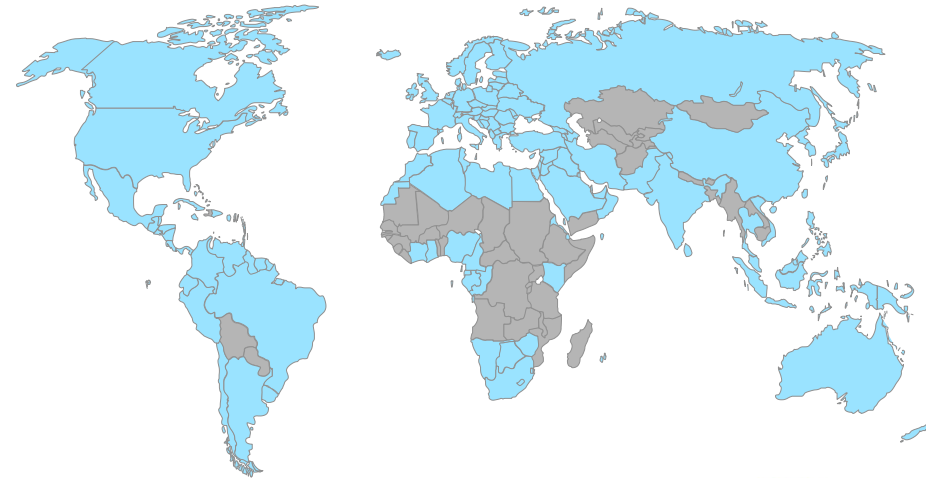


**Pilot phase, phase 1: 2021-2027  
(Voluntary)**



● CORSIA pilot participant (2021-2023)

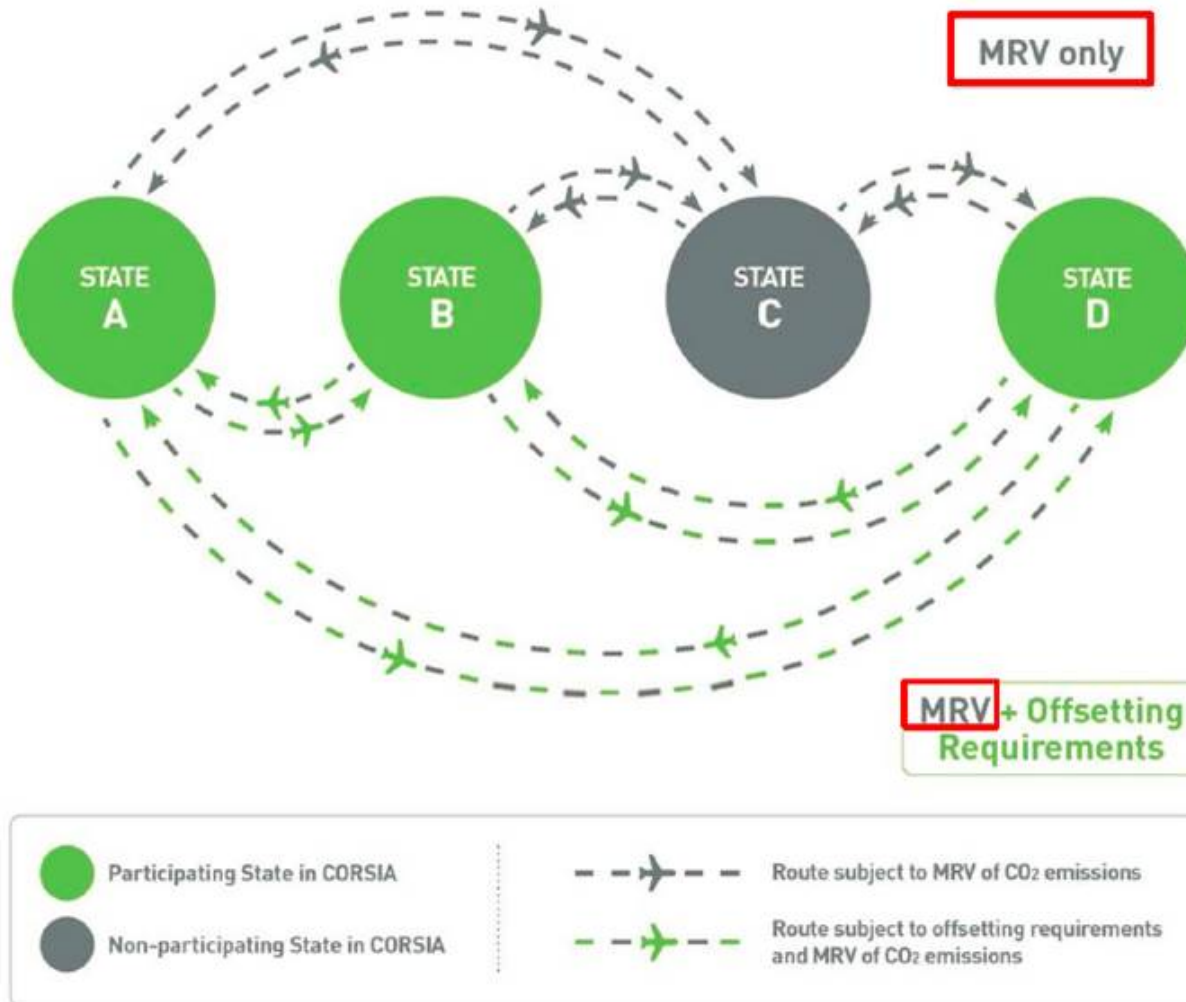
**Phase 2: 2027-2035  
(Mandatory)**



● CORSIA phase 2 participant



# CORSIA coverage



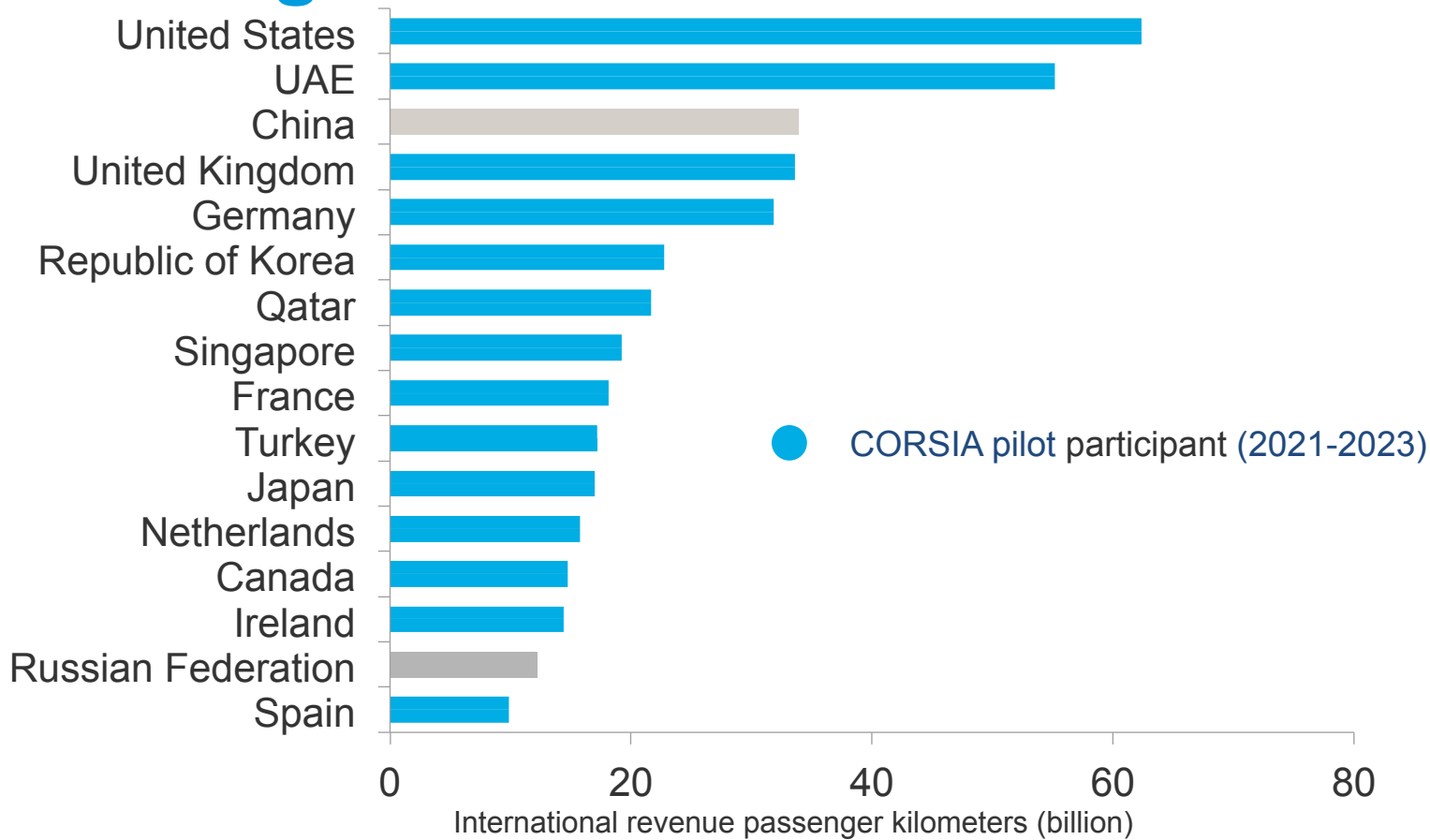
# CORSIA Market Volume and Value

**79 pilot-phase states account for 76.63%** of global international aviation emissions are anticipated to participate (March 2019)

## Exemptions:

- Small-Island Developing States (SIDS)
- Least Developed Countries (LDC)
- Landlocked Developing Countries (LLDC)
- States with international aviation activity less than 0.5% of global that fall outside of cumulative 90% of sector activity globally (activity measured in revenue-tonne km)
- Total CORSIA offset demand 2021-2035 projected to be:
  - **3.0-4.0 GtCO<sub>2</sub>** (ICAO)

# Top Countries in International Passenger Kilometers



- World's largest airport recently opened in Istanbul in 2018

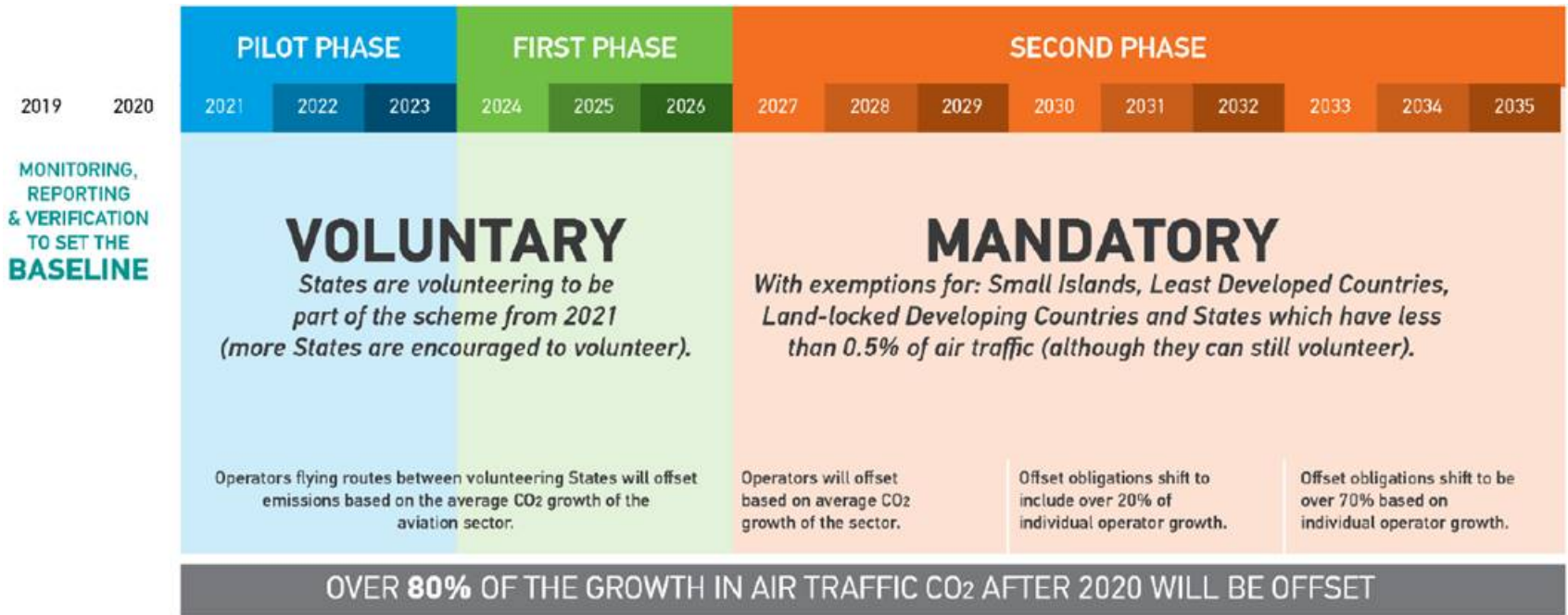


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# Backup slides

# Phased implementation





# Offsetting requirement

	<b>PILOT PHASE</b> 2021-2023	<b>FIRST PHASE</b> 2024-2026	<b>SECOND PHASE</b>		
			2027-2029	2030-2032	2033-2035
<b>SECTORAL COMPONENT</b>	100%	100%	100%	up to 80%	up to 30%
<b>INDIVIDUAL COMPONENT</b>	0%	0%	0%	at least 20%	at least 70%

# Offsetting requirement

## HOW TO CALCULATE CO<sub>2</sub> OFFSETTING REQUIREMENTS?

Operator's annual emissions **X** Growth Factor = **CO<sub>2</sub> offsetting requirements**

The Growth Factor changes every year taking into account both the sectoral and the individual operator's emissions growth. The Growth Factor is the percent increase in the amount of emissions from the baseline to a given future year, and is calculated by ICAO.

