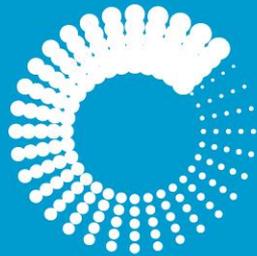


# CCS Roadmap, getting started.

June 6th 2018



De Gemeeynt

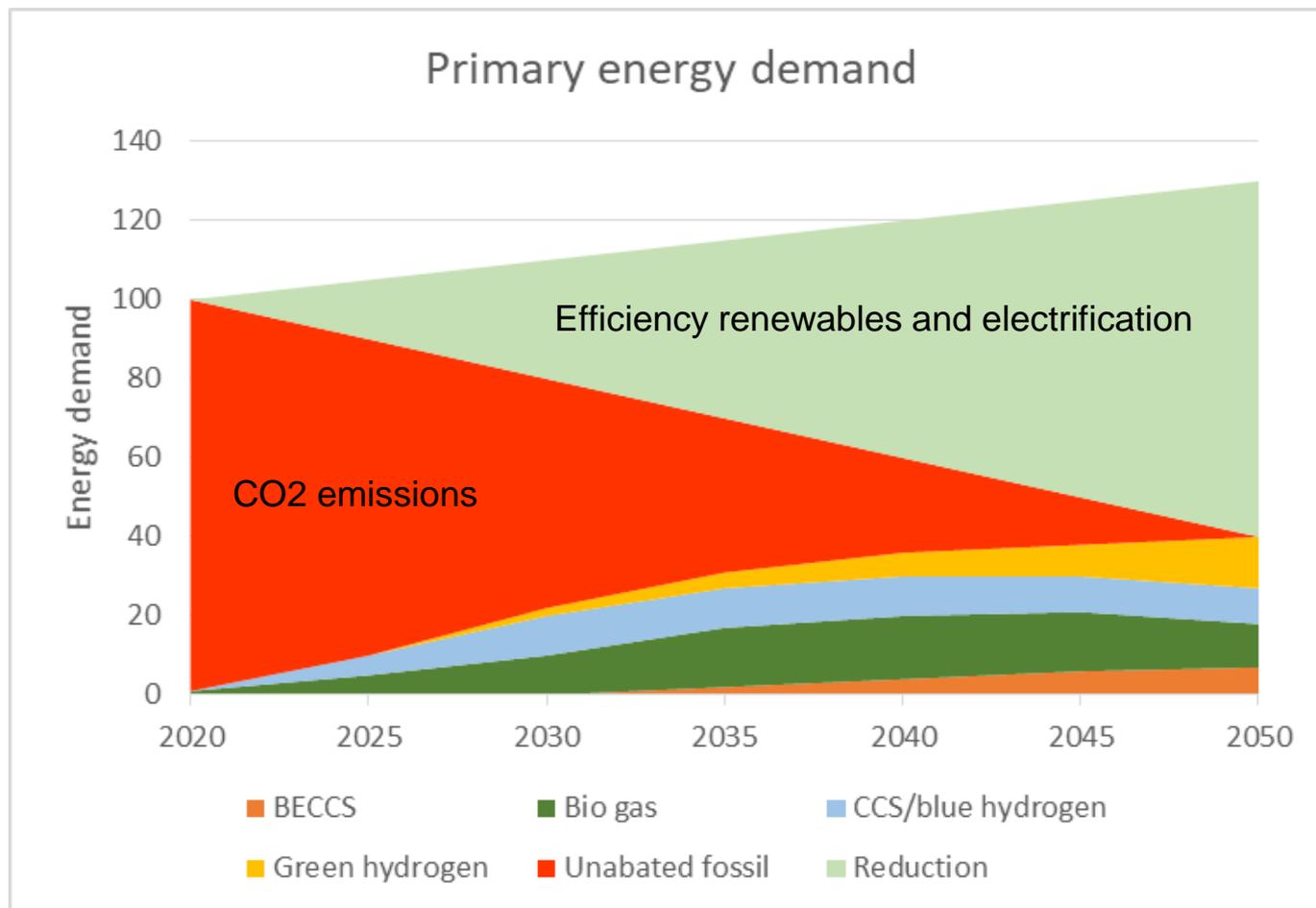
# Agenda

1. The process
2. Why is CCS necessary
3. The initial CO2 sources
4. Necessary pre-conditions for implementation
5. The roadmap
6. Organization

## The process

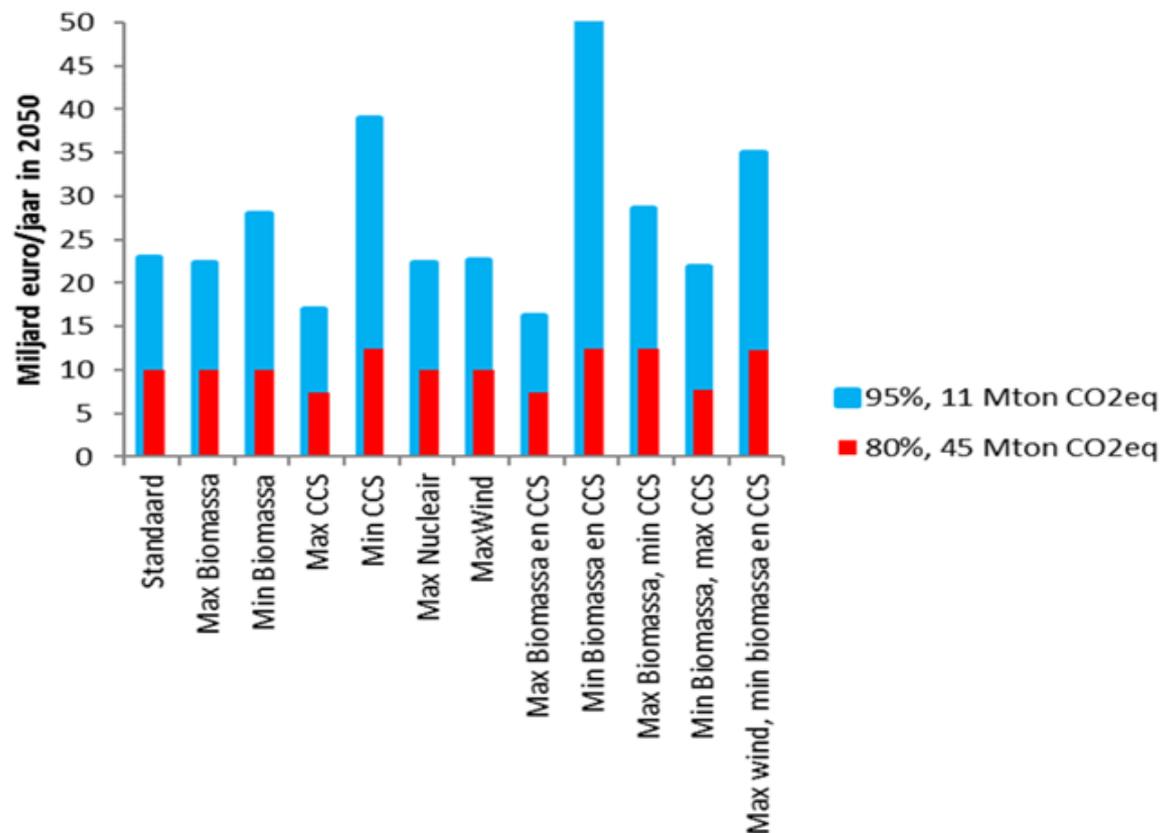
- The CCS Forum (five meetings)
- Four working groups
  - Legal
  - Transport and storage
  - Sources
  - Societal acceptance
- Special meeting on the necessity off CCS

# The Carbon budget



# CCS in transition scenario's

On a national level CCS is necessary to realize 95% emission reduction.



# Discussion

- Comments

- Assumptions (maximum amount of RE, no major changes in industry) determine the outcome;
- New technologies;
- Is CCS a proven technology;
- The PBL assumptions were not conservative;

- Conclusion

- We can not take the risk of not developing the option, the potential alternatives are not available yet.
- The introduction of CCS should not hinder the further development and introduction of more sustainable options.

# Where should CCS be implemented

- Group 1, Activities that remain relevant and that have no alternatives for CCS:
  - Steel production some chemistry
- Group 2, Activities that will probably be less relevant within the transition but will still be responsible for substantial emissions uptill 2050 and have no alternatives for CCS. No lock ins.
  - Refineries, H2 production, NH3 production, waste incineration.
- Group 3, new sources that are essential within the transition.
  - Blue hydrogen, BECCS
- Take CCU into account



# Essential preconditions for launch off CCS

## 1. Launch of 2-4 start-up projects:

- Financial support from the government and Europe
- Maximum learning effect and maximum CO2 effect
- Sources from group one and two.

## 2. Transport and storage infrastructure

- The government should ensure that parties invest in the necessary infrastructure.
- Take away the unlimited liability for the parties that store CO2.

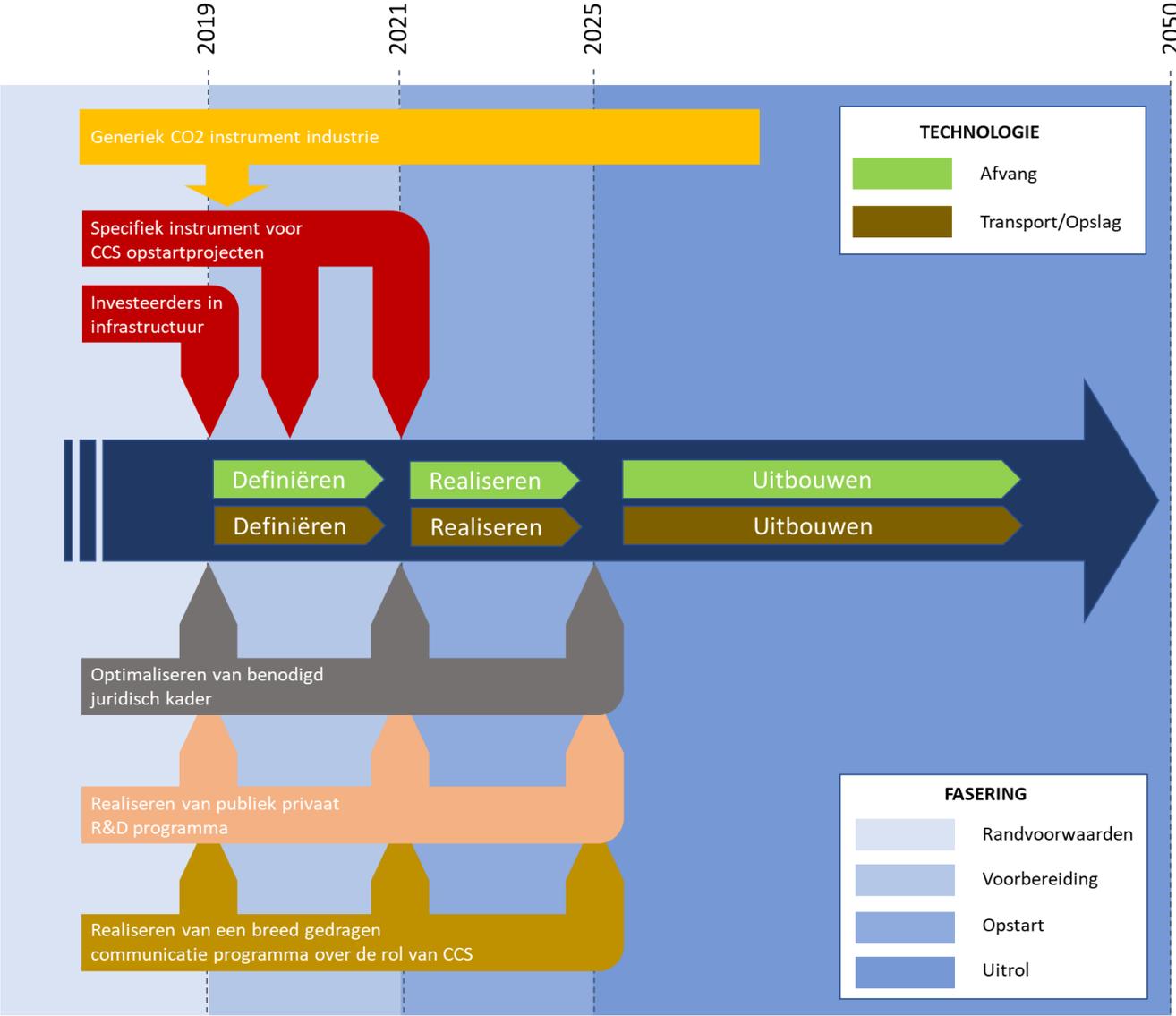
## 3. Generic CO2 instrument for industry,

- Create a business case for CCS.
- Balance between the carrot and the stick.

## Other preconditions

- The legal context is not yet optimal
- Public private R&D program
- Societal acceptance of CCS within the overall energy transition. Building blocks:
  - The carbon budget approach;
  - CCS within a balanced total transition strategy;
  - No Lock ins;
  - Financial support should not hinder other developments;
  - Transparent and widely accepted communication on CCS.

# Planning routekaart



# Organization of the implementation

- Project based organization within the government
- Collaborations around the first integral projects
- National CCS organization for communication on CCS
- CCS R&D organisation, CATO

Close cooperation is  
essential

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