Final TFMES workshop

Updates based on the Minister's positions on Fluxys-Elia scenarios for the upcoming hydrogen and electricity development plans

05/02/2026

fluxys elia | Elia Group

DISCLAIMER

Elia nor Fluxys have the models/competences to estimate accurately and readily the impact of some political measures (energy norm, tax shift…) on the energy future. Therefore, a pragmatic method was used for these impacts. The changes which were made are to be considered in this light.

Agenda of the meeting

- Scenarios and process
- The Minister’s positions
- Updates - Final energy demand
- Updates - Energy supply & other
- Next steps

Scenarios and process

Reminder: the scenarios which were proposed for the federal development plans are the result of an intensive co-creation process

Task Force Multi-Energy Scenarios =
New collaboration between **Fluxys and Elia** to **transparently** co-create long-term energy scenarios **together with our stakeholders**

WORKSHOPS, PUBLIC CONSULTATION AND BILATERAL INTERACTIONS

KICK-OFF – 13.03

INDUSTRY DEMAND – 03.06

CONSULTATION OUTCOMES – 28.10

18.07

12.09

Public consultation

TRANSPORT AND BUILDING DEMAND – 17.04

ENERGY SUPPLY – 08.07

+ BILATERAL INTERACTIONS

- DSO's (multiple synergrid meetings)
- NGO's
- Academia
- Cabinets of federal and regional ministers
- …

30
Stakeholders
(including confidential)

300
comments

Amongst who:

- Vlaamse Regering
- Gouvernement wallon
- CREG
- VNR
- Federal Planning Bureau
- ORES
- …

elia & Elia Group fluxys

+90 EXTERNAL STAKEHOLDERS

+50 ORGANISATIONS

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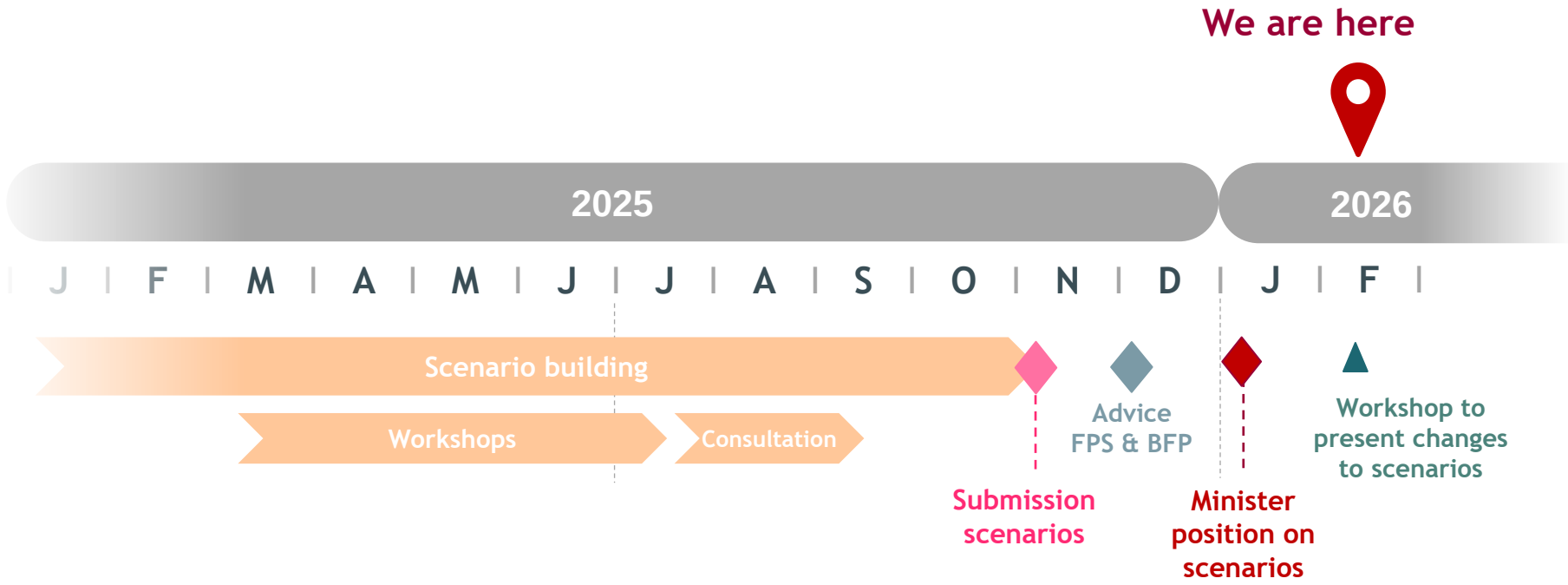
Scenario development



The scenarios are now <u>frozen</u>

This presentation of the changes compared to the submitted scenarios is thus for information only. The presentation will be made available afterwards on Elia-Fluxys websites.

Reminder - Three scenarios for the demand

Demand

three scenarios

*Fulfilling the **same level of useful demand** with different energy vectors*

Current commitments & ambitions - 'BASE'

- announced targets, policies, existing trends and governmental ambitions

Accelerated electrification - 'ELEC'

- high levels of electrification in all sectors
- molecules are applied in hard to electrify sectors
- CCUS is mainly applied for the abatement of industrial process emissions

New molecules + CCUS - 'MOL'

- electrification limited and at slower pace
- molecules remain important in most sectors
- CCUS is crucial for the abatement of both industrial processes and combustion emissions

NEW

- Sufficiency sensitivity
- Datacenter+
- H_2^+ Hydrogen+

Abbreviations: CCUS – Carbon Capture Utilization and Storage

Reminder - Four scenarios for the supply

Electricity generation

one scenario + three sensitivities

Central scenario

- announced targets, policies, existing trends and governmental ambitions

Local sensitivity

- more decentral renewable energy production
- lower ambitions for nuclear and non-domestic offshore

Large-scale sensitivity

- higher ambitions for nuclear and non-domestic offshore

FLEX+ sensitivity

- Very high yet credible levels of flexibility

The Minister’s positions

Minister's position on scenarios

Minister's positions - summary

N°	Position (Demand)	Impact
1	Pre-crisis industrial production levels for all scenarios + impact energy norm	Higher final energy demand in the short-term (2030-2035) mainly due to the update of the production levels (pre-crisis).
2	Incorporate federal tax shift	Lower methane & oil consumption and higher electrification in buildings
3	Update CCS assumptions based on latest data	CCS assumptions are still aligned with the latest data -> No Impact
4	Adapt EV uptake assumptions for BASE & MOL to the revised EU 2035 ICE vehicle ban	Slight delay in EV uptake leading to lower, elec demand and higher carbo liquids (and thus emissions) – no impact for 2050
5	Postpone the ban on new gas boilers in existing buildings to 2035 in WL (ELEC)	Slower uptake of HP, leading to more oil and gas boilers (and thus higher emissions)

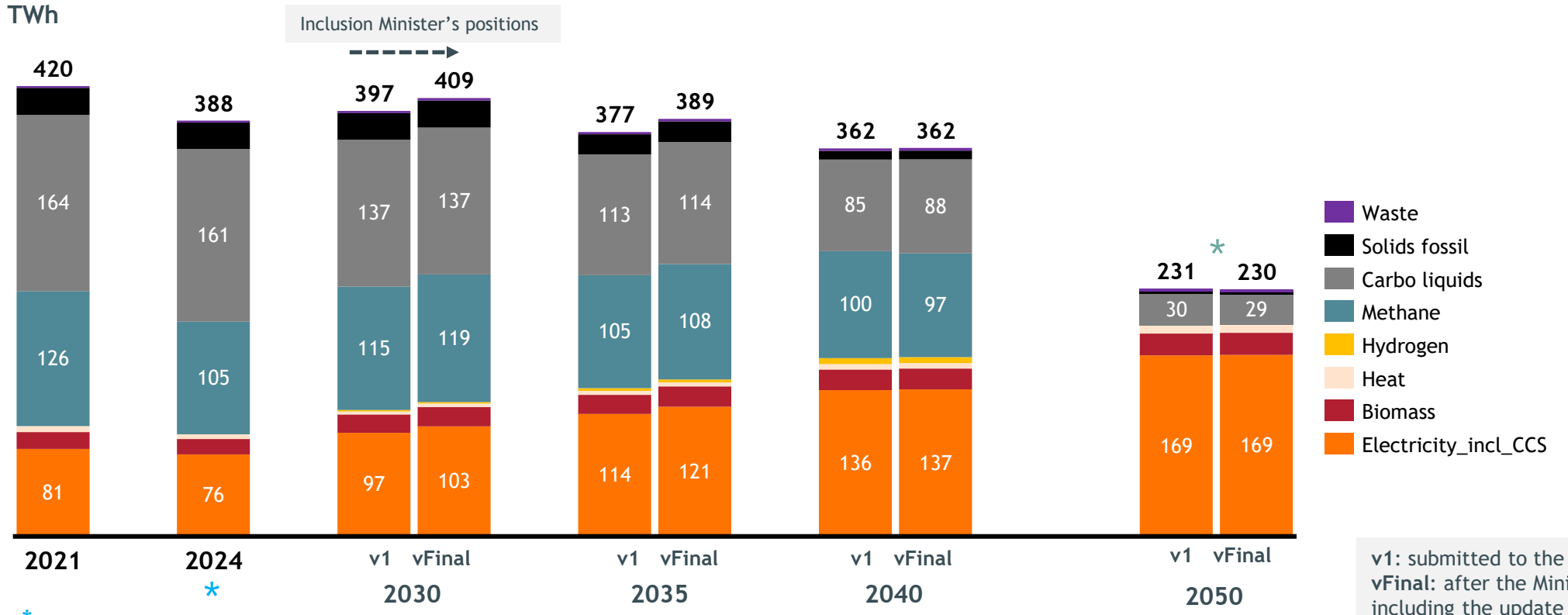
N°	Position (Supply & other)	Impact
6	1st offshore zone (eastern zone) capacity aligned with NECP-WAM, no 3rd zone in the central scenario	The offshore trajectories are significantly less ambitious in the central scenario
7	Additional solar capacity (+500 MW) floating PV by 2050 in LARGE-SCALE	Floating offshore PV added in the trajectories
8	30% data centre flexibility in the FLEX+ sensitivity	More flexibility in FLEX+ (compared to 20% before)
9	Additional scenario respecting intermediate targets	Suggestion of Elia-Fluxys to use the ELEC scenario with some adaptations (LULUCF + RED III)
10	Additional sensitivity Hydrogen+	New sensitivity will be created
11	Capacity needs for methane security of supply and study of reconversion need to H_2 should be taken into account	The requirement will be explicitly integrated into the preparation of the hydrogen development plan
12	Carbon emissions and import dependence should be (re) computed after market simulations	Both will be shared in the development plans for the scenarios simulated

Updates - Final Energy Demand

The Minister's positions lead to higher final energy demand in the short-term, limited impact on the long-term

Impacts on final energy demand - excl. int transport, feedstock, grid losses

BASE



v1: submitted to the Minister
vFinal: after the Minister's positions including the update

*2024 based on preliminary EUROSTAT energy balances

* Values for ammonia, methane and hydrogen are not shown for 2050

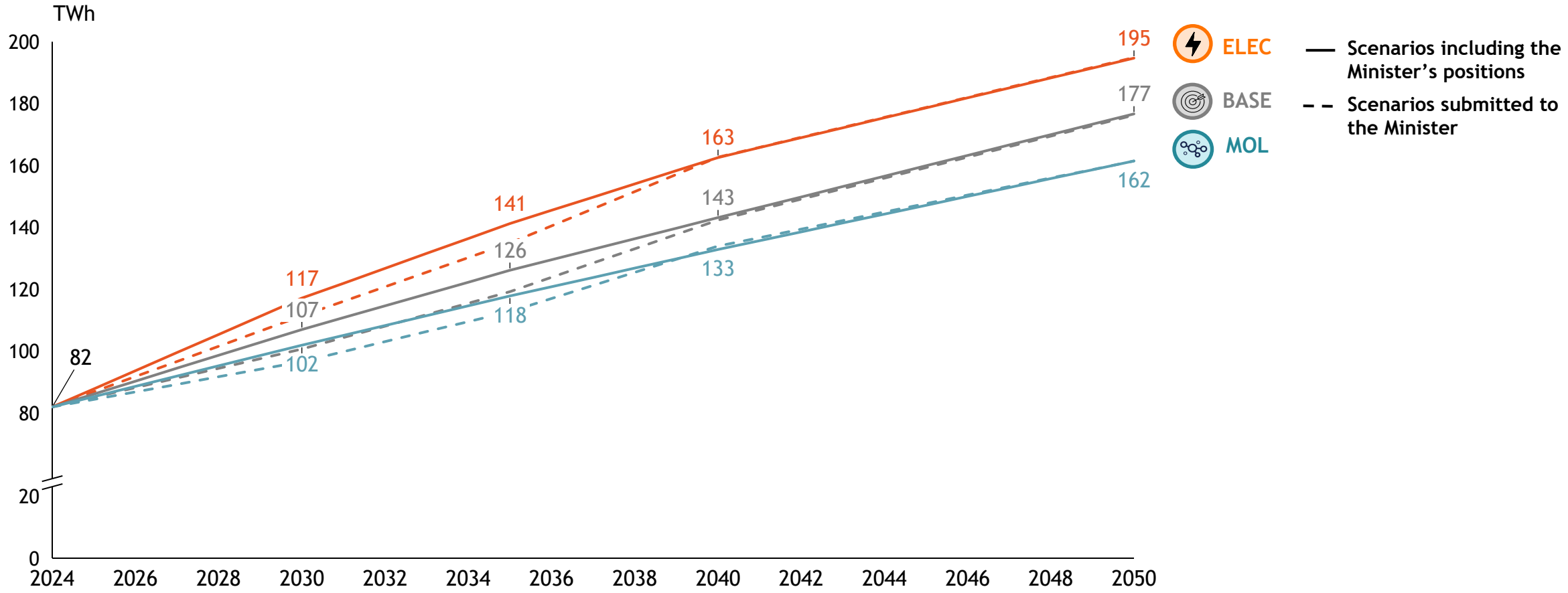
The impact is largest in the short term, mainly due to the update of the production levels (pre-crisis)**
The federal tax shift leads to somewhat lower methane consumption, with a slightly higher electrification
The delay in EU legislation regarding EVs, leads to higher carbo liquid demand in the medium-term

***note that this was already the base assumption for 2040-2050, hence the lower impact*

The Minister's positions lead to a higher electricity demand in the short-term

Electricity demand

Including grid losses and CCS, excluding electrolysers



2024 based on preliminary EUROSTAT energy balances

01 The Minister's position: Pre-crisis industrial production levels for all scenarios + impact energy norm

The Minister's position

Ajuster l'hypothèse concernant le niveau de production de l'industrie, en prenant en compte le niveau de production pré-crise sur la période 2028-2038 ;
Tenir compte des décisions récentes du gouvernement fédéral en matière d'accises sur l'énergie ainsi que la norme énergétique, ces décisions soutenant l'électrification ;

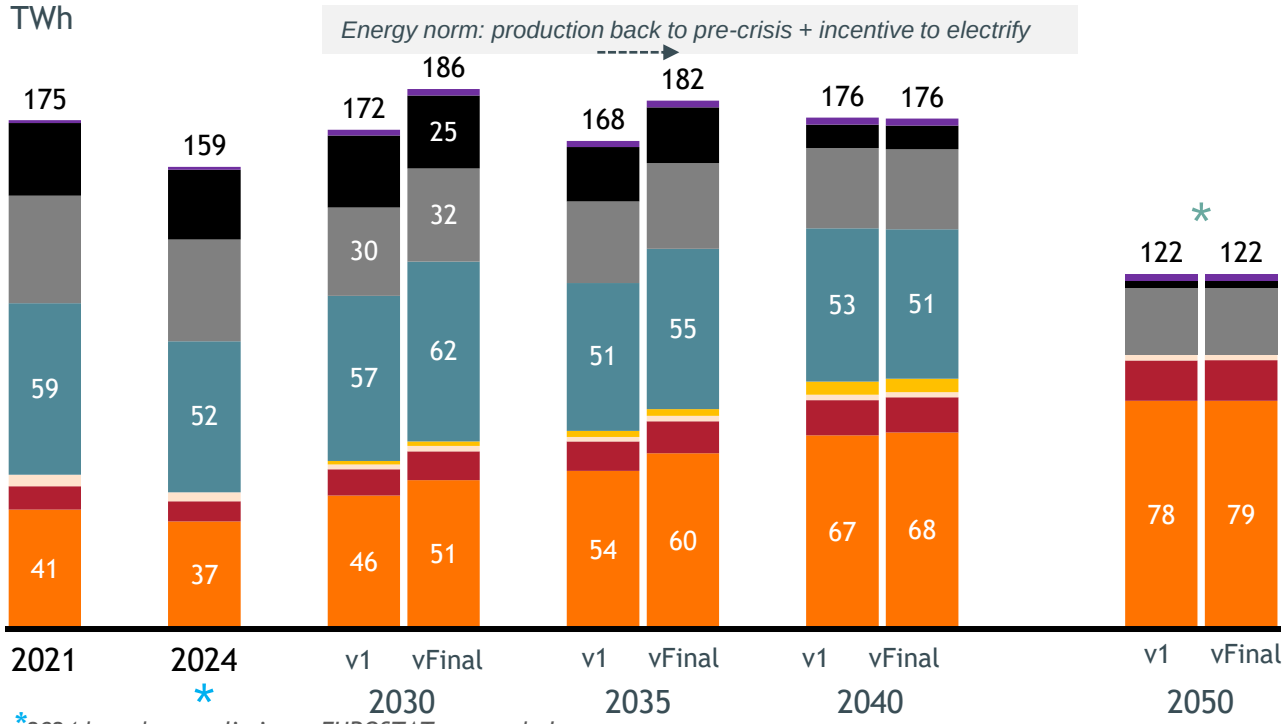
Implementation method

Adapt the BASE, MOL, ELEC production levels for 2030-2035 to 2021 levels - but remove confirmed closures (and add new projects)
Energy norm: increase fuel switch electrification by 5% in 2030 10% in 2035 and 5% in 2040. No impact on final level in 2050

Impacts on industry energy demand

BASE

TWh



*2024 based on preliminary EUROSTAT energy balances
* Values for ammonia, methane and hydrogen are not shown for 2050

Note: the Elia-Fluxys projections uses bottom-up data collections to quantify industry demand for the BASE scenario. These are based on customer projections in the context of the existing and anticipated policies and prices determining their business case. **Elia-Fluxys does not have models which are capable of translating energy prices directly into demand projections**, therefore a pragmatic method was used.

v1: submitted to the Minister
vFinal: inclusion Minister's positions (production level to pre-crisis + energy norm impact)

Using pre-crisis production levels for 2030-2035 has a significant impact
Pre-crisis level was already assumed for 2040-2050: only minor impact due to energy norm

02 The Minister's position: incorporate federal tax shift

The Minister's position

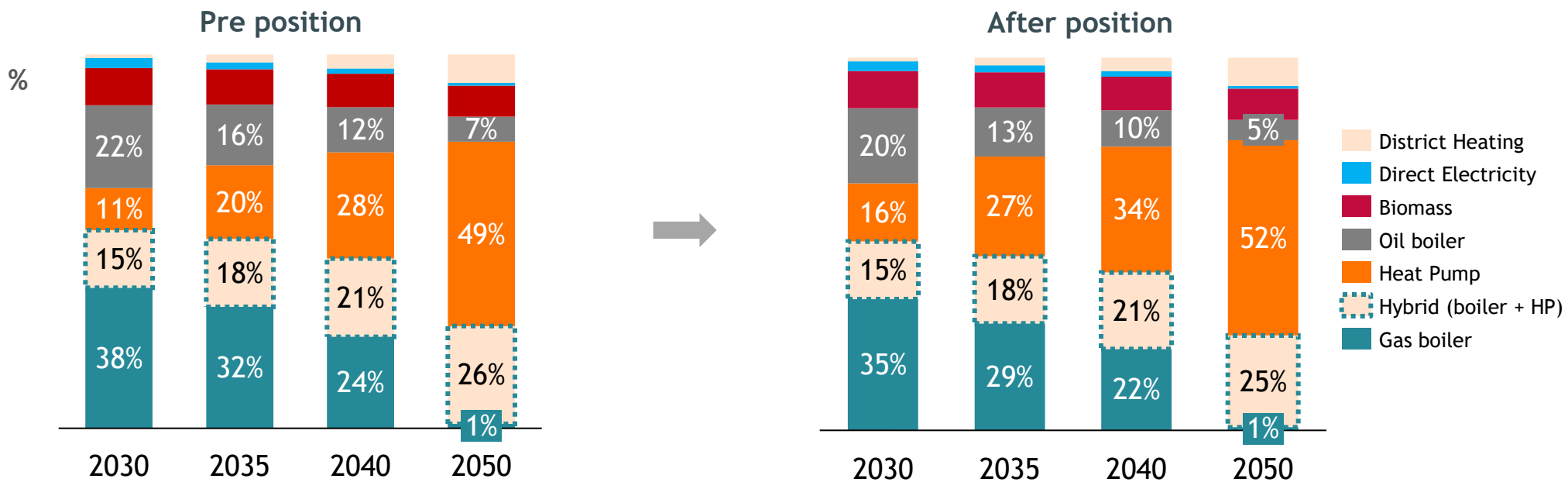
Tenir compte des décisions récentes du gouvernement fédéral en matière d'accises sur l'énergie ainsi que la norme énergétique, ces décisions soutenant l'électrification ;

Implementation method

Buildings: faster HP uptake in favour of gas & oil boilers

Note: Elia-Fluxys does not have models which are capable of translating customer energy prices and taxation measures directly into demand projections. The previous trajectory was based on best estimates derived from stakeholder interactions (DSO, regional governments and the regional energy and climate plans), the tax shift impact was computed in a pragmatic manner.

Impacts on heating appliances (residential) BASE



The Federal tax shift increases the share of heat pumps versus gas and oil boilers

02 The Minister's position: incorporate federal tax shift

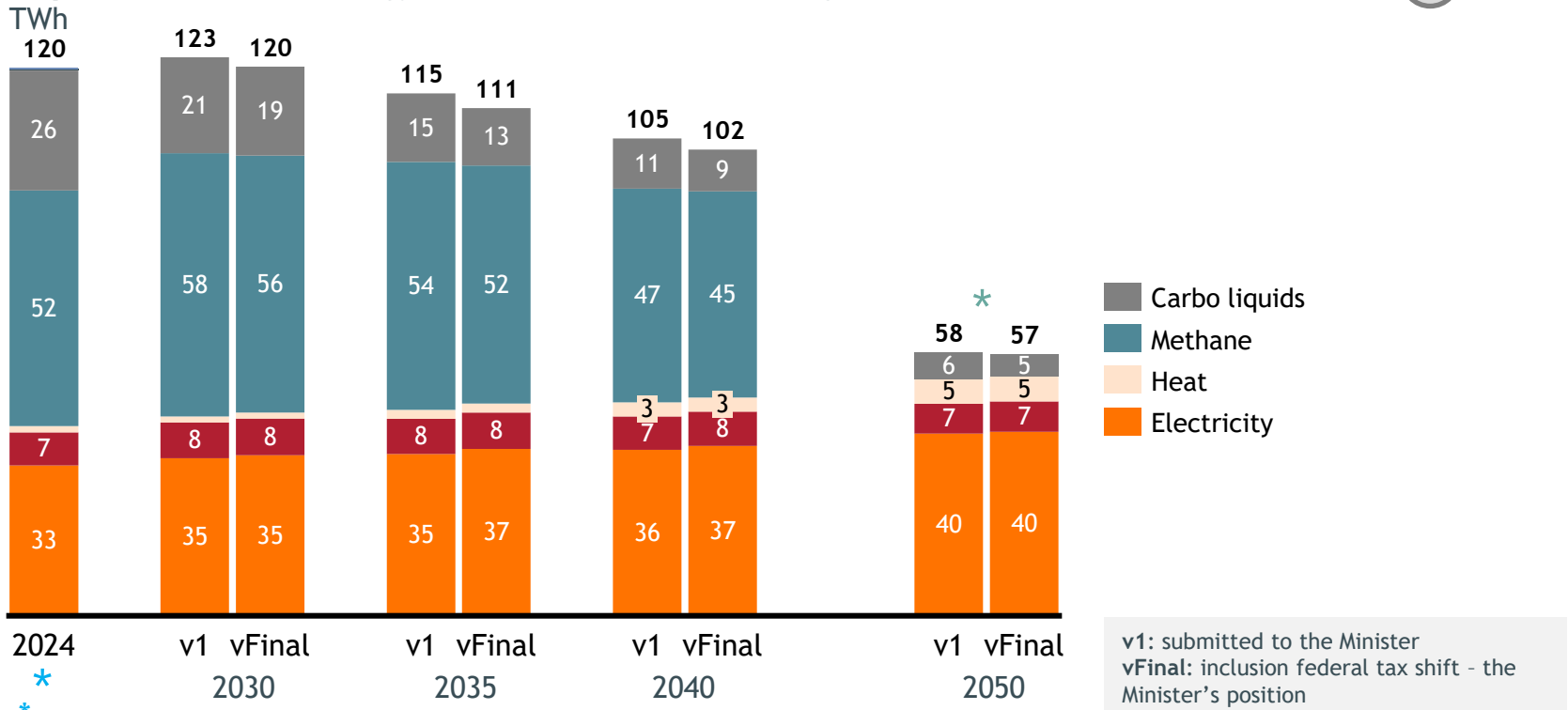
The Minister's position

Tenir compte des décisions récentes du gouvernement fédéral en matière d'accises sur l'énergie ainsi que la norme énergétique, ces décisions soutenant l'électrification ;

Implementation method

Buildings: faster HP uptake, inspired from calculations performed in the context of the VEKP

Impacts on final energy demand in the building sector (residential + tertiary) BASE



v1: submitted to the Minister
vFinal: inclusion federal tax shift - the Minister's position

*2024 based on preliminary EUROSTAT energy balances

* Values for ammonia, methane and hydrogen are not shown for 2050

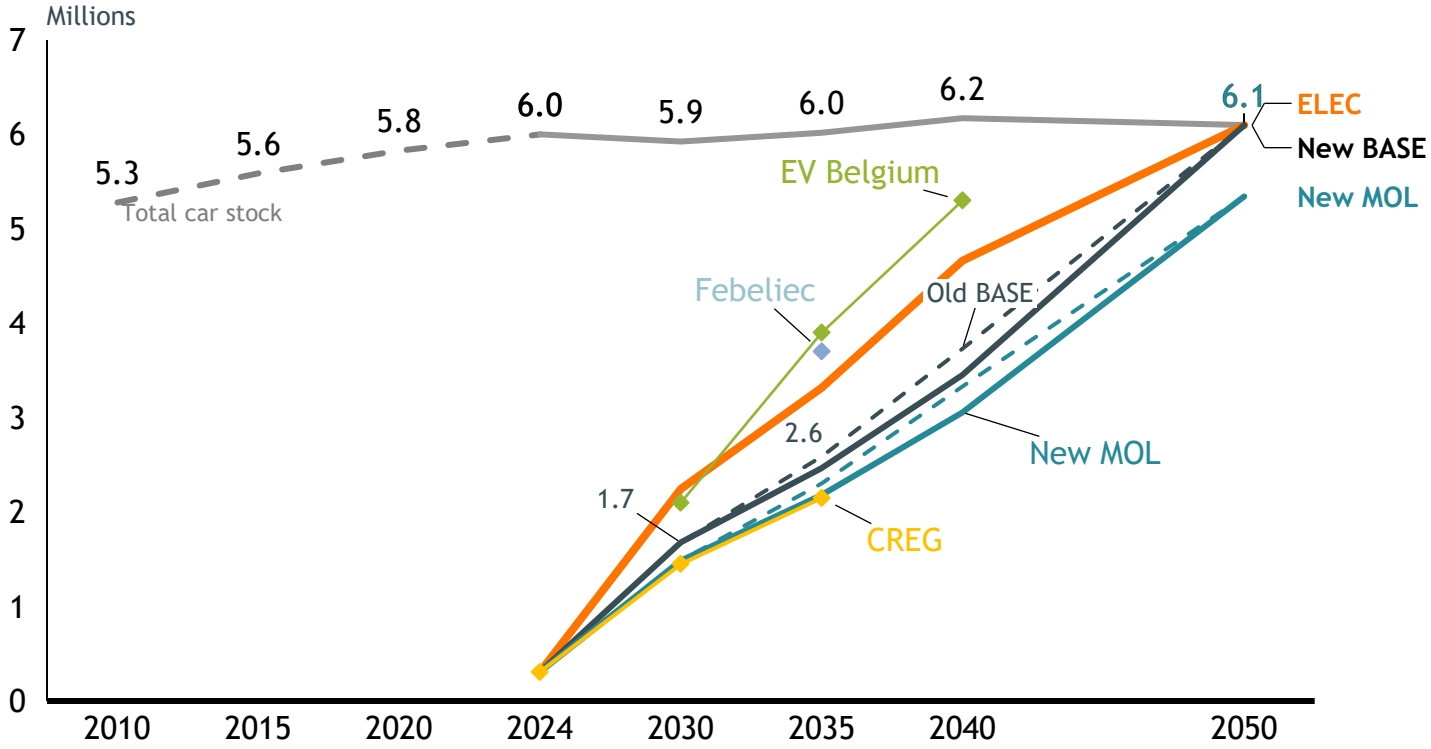
The Federal tax shift leads to a slightly faster uptake of heat pumps, leading to a marginally higher electricity demand and lower methane demand, especially in the 2030-2035 horizon.

Additional insight

04 The Minister's position: adapt EV uptake assumptions for BASE & MOL to the proposed revised EU 2035 vehicle ban

Passenger cars

Amount of BEV in Belgium



Key assumptions

BASE: 100% BEV sales from 2040 (was 2035 before)

ELEC: 100% BEV sales from 2030

MOL: 100% BEV sales from 2040, but slower intermediate uptake than in BASE, still ~10% ICE in 2050

Passenger rate: constant at 1.25 passenger/car, based on historical passenger.km/veh.km

Total car stock: Increase in population is counterbalanced by modal shifts.

EV efficiency: based on AdeqFlex and other publications for the long term

04 The Minister's position: adapt EV uptake assumptions for BASE & MOL to the revised EU 2035 vehicle ban

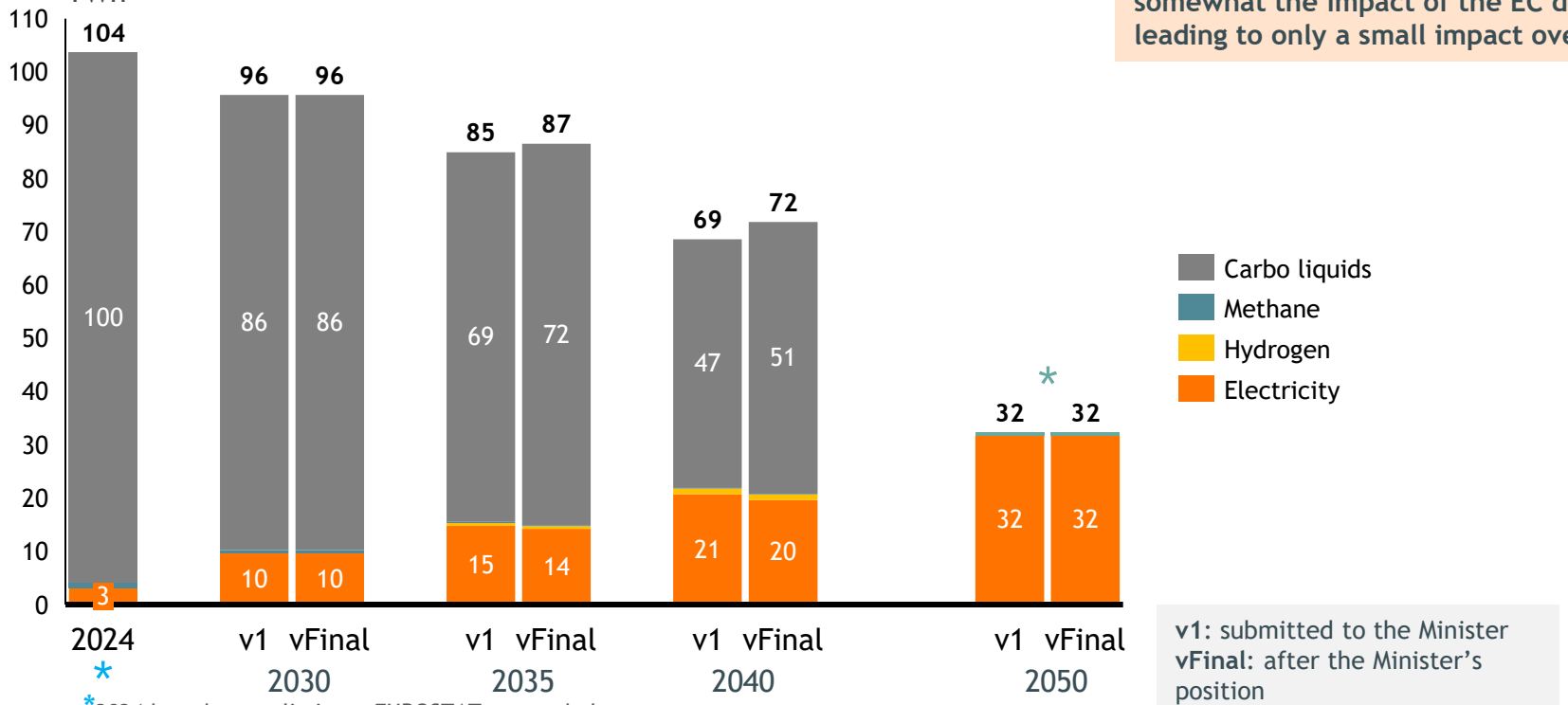
The Minister's position

Pour les scénarios BASE et MOL, ajuster les hypothèses concernant l'adoption des véhicules électriques en tenant compte de la récente annonce de la Commission européenne sur l'assouplissement de l'interdiction à la vente des voitures neuves thermiques ou hybrides en 2035 ;

Implementation method

Delay EV uptake in BASE & MOL (ICE sales after 2035)
Keep the same 2050 level, as economics did not change in the long run

Impacts on final energy demand in national transport



*2024 based on preliminary EUROSTAT energy balances

* Values for ammonia, methane and hydrogen are not shown for 2050

Note that impact of tax shift dampens somewhat the impact of the EC decision, leading to only a small impact overall

v1: submitted to the Minister
vFinal: after the Minister's position

Slight decrease in electricity demand, compensated by increase in carbo liquids (and thus emissions) - no impact for 2050.

05 The Minister's position: postpone the ban on gas boilers in existing buildings to 2035 in WL (ELEC)

The Minister's position

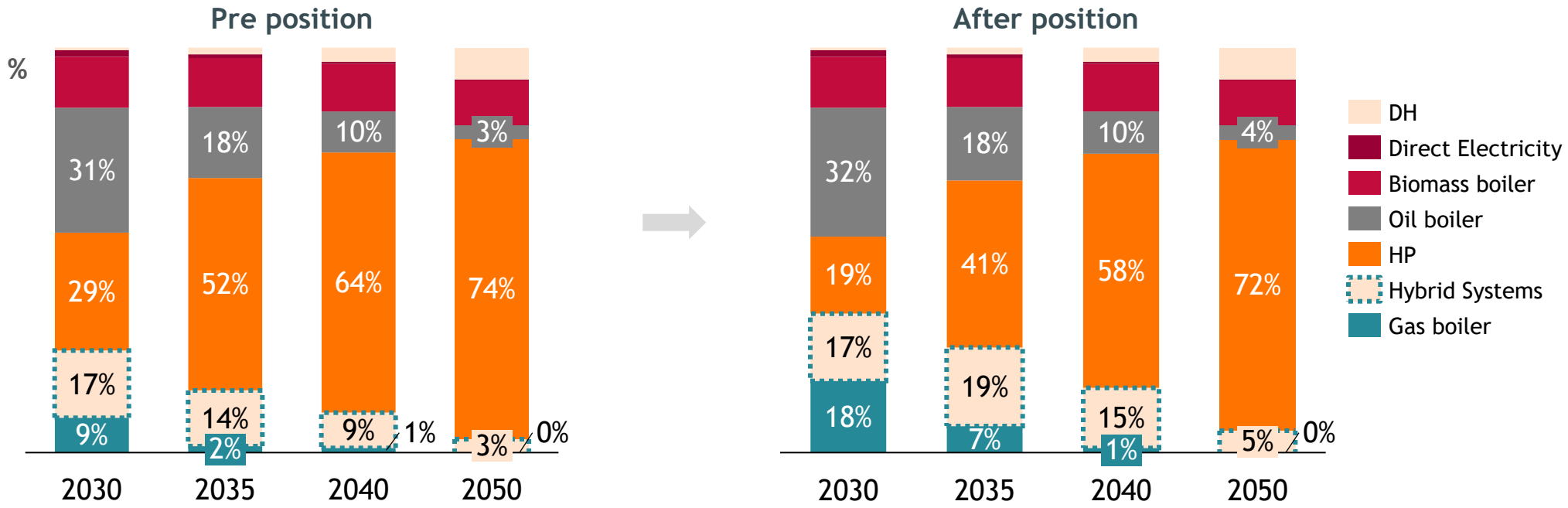
Dans le scénario ELEC, en ce qui concerne la Région wallonne, décaler l'interdiction des chaudières à gaz dans les bâtiments existants à 2035 afin de respecter une cohérence vis-à-vis d'une interdiction similaire pour les chaudières au mazout, prévue en 2031.

Implementation method

Adapt the trajectory no new oil from 2031, gas from 2035

However: note that in the ELEC scenario both mazout and gas boilers were assumed phased out as of 2030 so the assumptions were not necessarily incoherent. The 2031 phase-out for mazout was indeed considered in the BASE scenario based on WL government inputs(~existing policies). 2031 for mazout was also applied here hence the light increase in oil boilers

Impacts on heating stock - residential sector ELEC



The delay of the assumption on no new oil and gas boilers leads to slower uptake of heat pumps, leading to more oil and gas boilers (and thus higher emissions).

03 The Minister's position: update CCS assumptions based on latest data

The Minister's position

Revoir les hypothèses pour la capture et le stockage du carbone selon les données les plus récentes disponibles ;

Implementation method

Review CCS assumptions with the most recent data

Impacts

Crosscheck has been performed with commercial department and latest known public information
→ **NO IMPACT**

The CCS assumptions are still aligned with the latest data.

Updates - Supply & other

6+7 The Minister's positions lead to a lower domestic offshore wind capacity

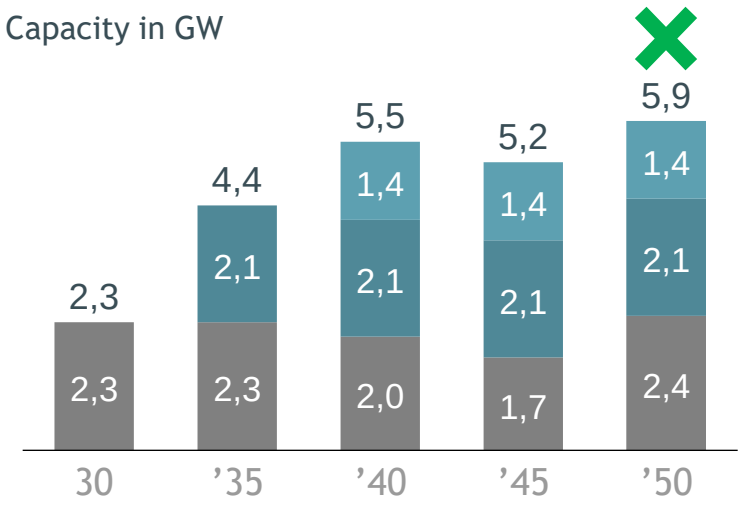
Offshore wind domestic - trajectories for the Federal Development plan

EEZ1 - Repower existing MOG I	2.3 → 2.4 GW
EEZ2 - PEZ I & II (< '35)	2.1 GW
EEZ2 - PEZ III (< '40)	1.4 GW
EEZ3 - new EEZ only in LS	1.5 GW

Central scenario

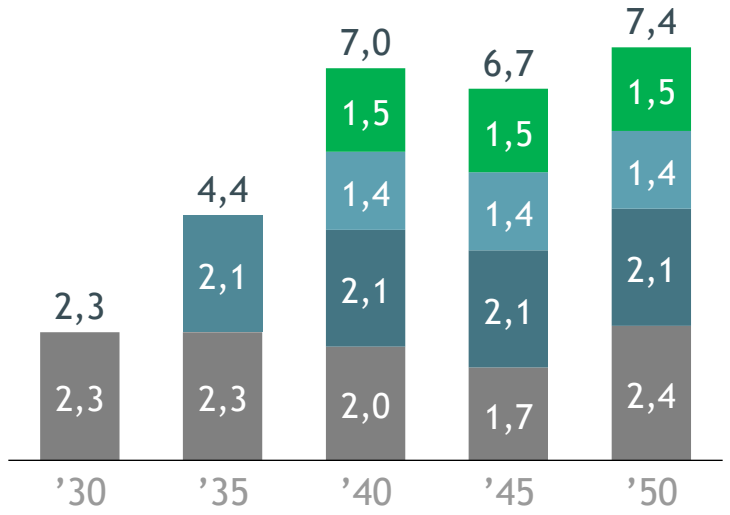
Local scenario

Capacity in GW



Large-scale sensitivity

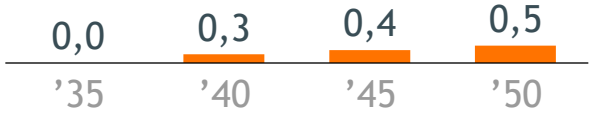
Capacity in GW



Minister's positions:

- Alignment of the 1st offshore zone (EEZ1) with the NECP-WAM trajectory for the repowering, leading to temporary lower capacity for 2040 & 2045.
- Removing the 3rd EEZ zone from the Central scenario.
- Adding floating solar in offshore for the large-scale sensitivity

+ **Floating solar (large-scale)**

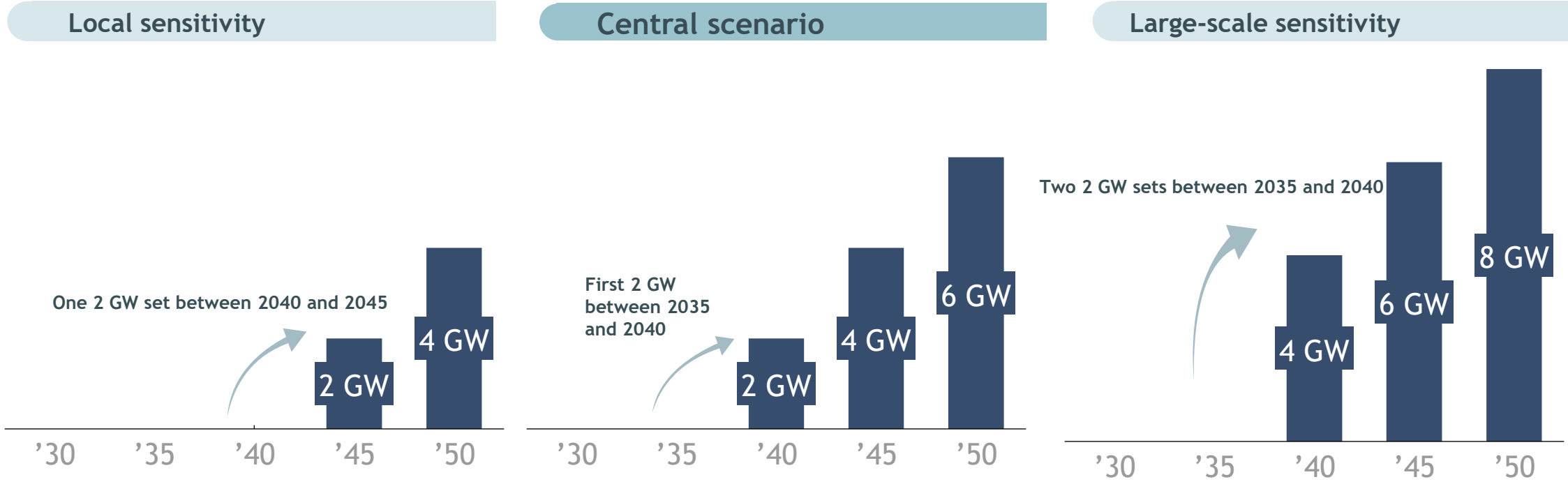


No changes in non domestic offshore following the Minister's position on the scenarios

Reminder:
- All scenarios and sensitivities foresee the implementation of non-domestic offshore wind in the Belgian electricity mix.
- Three distinct trajectories are proposed reaching between 4 and 8 GW in 2050.

Offshore wind non-domestic - trajectories for the Federal Development plan

Capacity in GW



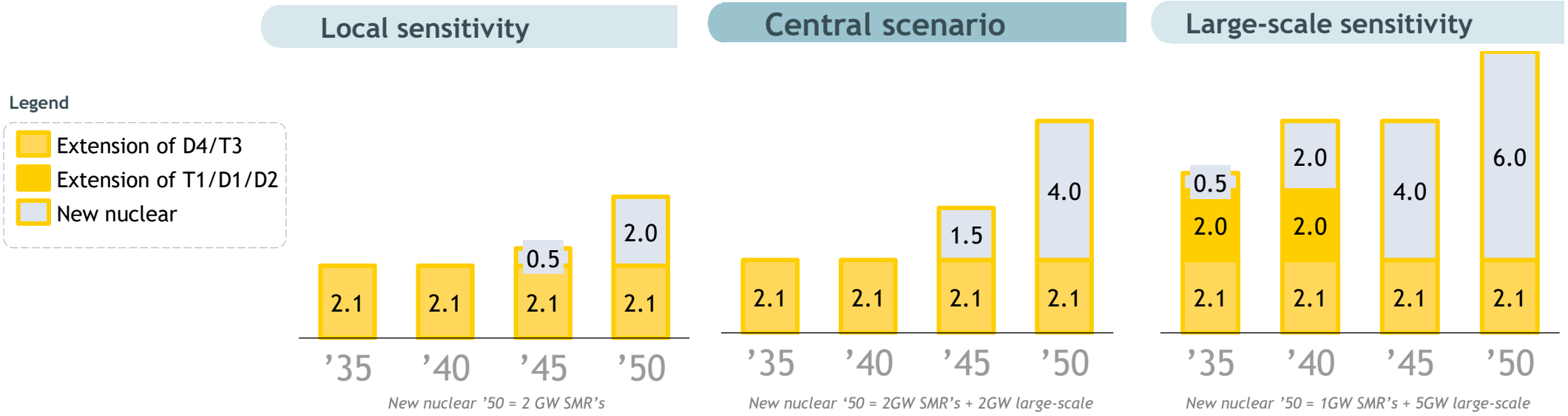
No changes in nuclear following the Minister's position on the scenarios

Reminder:

- Central scenario assumes extension of Doel4/Tihange3 only (Tihange1 extension was removed from central scenario after comments received during public consultation) and assumes also new nuclear capacity by 2045
- Large-scale sensitivity assumes already 0.5 GW of SMR by 2035
- All scenarios keep minimum of 4 GW of nuclear by 2050 given government ambitions

Nuclear - trajectories for the Federal Development plan

Capacity in GW



08 The Minister's position: 30% data centre flexibility in the FLEX+ sensitivity

The Minister's position

Considérer une flexibilité de 30 % pour les centres de données dans la sensibilité FLEX+ ;

Implementation method

Adapt the value for the FLEX+ sensitivity

Impacts

1. **Higher flex in the FLEX+ (30% vs 20% before)**

09 The Minister's position: additional scenario respecting intermediate targets

The Minister's position

Un scénario supplémentaire qui respecte les ambitions climatiques intermédiaires :

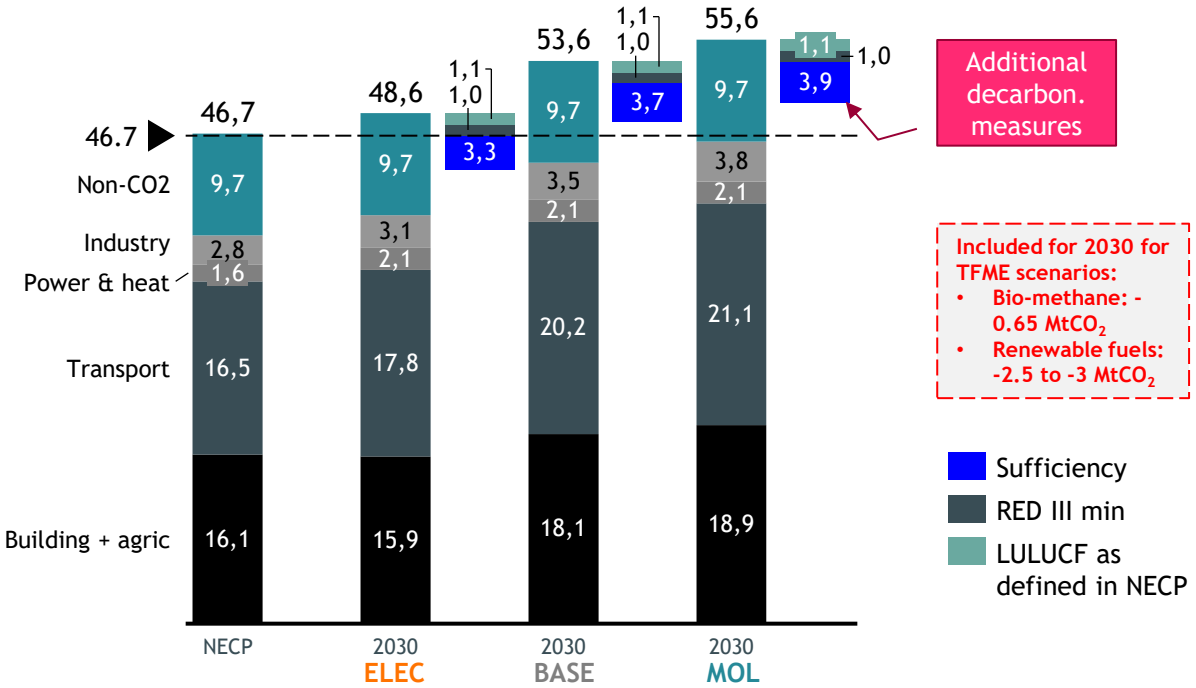
- Tenir compte des décisions récentes du gouvernement fédéral en matière d'accises sur l'énergie ainsi que la norme énergétique), ces décisions soutenant l'électrification ;
- Prendre en compte les réductions d'émissions résultant de la transposition belge de la directive RED III dans les secteurs du transport et de l'industrie, ainsi que celles liées à l'application des réglementations FuelEU Maritime et ReFuelEU Aviation ;
- Appliquer les réductions d'émissions de gaz à effet de serre liées au LULUCF en se basant sur les valeurs du dernier PNEC consolidé (i.e., -1.094 MtCO2eq en 2030, -1.129 MtCO2eq en 2035, et -1.147 MtCO2eq en 2040) ;

Implementation method

All scenarios are adapted based on Tax shift and Energy norm measures. (cf. previous slides)
LULUCF data is included as given.
RED III minimum target is included (mostly for road transport for ESR scope).

RED III (industry part), FuelEU Maritime, ReFuelEU Aviation have an impact on ETS emissions (without target).

ESR emissions in 2030 (Mt $CO_{2\ eq}$)



Scenario aligned with intermediate targets:

No additional scenario needs to be prepared. The "adapted" ELEC scenario is aligned with the 2030 target for ESR emissions when including LULUCF and the minimal emission reductions expected from RED III.
No additional sufficiency measure is needed when using the "adapted" ELEC scenario.

10 The Minister's position: additional sensitivity Hydrogen+

The Minister's position

Un scénario supplémentaire qui se concentre sur le développement ultérieur de l'hydrogène et des dérivés de l'hydrogène. Afin d'obtenir une estimation maximaliste de la demande en hydrogène, ce scénario doit être élaboré selon les modalités proposées par la DG Energie (voir section 6.3, p.70 de l'avis de la DG Energie).

Implementation method

Develop a hydrogen-focused sensitivity using DG Energy assumptions (section 6.3, p.70 of DG Energy advice) to estimate maximum hydrogen demand

Impacts

Recommendation	Fluxys proposal
Consolidation of hydrogen consumption	A proposal will be made to give a high ambition scenario for hydrogen demand
Take into account existing (grey) hydrogen demand including Air Liquide clients.	The (grey) hydrogen production of this demand is integrated in the CH_4 values. Moreover, hydrogen as byproduct from oil/carbo liquids cracking&processing should be integrated in the liquids vector. No detailed information available about capacity and volumes (Air Liquide clients).
Molecules projection until 2050	An estimation will be provided
Steel sector projections : DRI before 2050	The same projection of hydrogen as ELEC scenario will be used (+6 TWh in 2040 due to DRI process)
Integration of hydrogen demand for synthetic fuels	At this moment, hard to quantify the future demand for synthetic fuels. Preliminary values are available (Entso-g), but again with a high degree of uncertainty.
Transit flow to NL and GE	Transit will be included in the investment plan
Dimension of the grid with consumption peak	Internal analysis ongoing to transform yearly value in hourly and peak values
Electrolyser flexibility	Will be considered during the simulation process

11 The Minister's position: capacity needs for methane security of supply and study of reconversion need to H_2 should be taken into account

The Minister's position

Prise en compte du besoin de capacité de transmission de méthane pour la sécurité d'approvisionnement lors de l'examen de la conversion éventuelle de cette capacité en transport d'hydrogène.

Implementation method

It will be taken into account

Fluxys will ensure that the need for methane transmission capacity required for security of supply is fully considered when assessing any potential repurposing of this capacity to hydrogen transport.

This requirement will be explicitly integrated into the preparation of the hydrogen development plan as mandated by the Royal Decree of 12 May 2024.

12 The Minister's position: carbon emissions and import dependence should be (re-)computed after market simulations

The Minister's position	Implementation method
Recalcul des émissions de carbone à partir des résultats des simulations de marché une fois qu'elles auront été réalisées ;	It will be done for the simulated scenarios (which will be decided with the CdC) and share it in the development plans
Calcul de la dépendance globale à l'importation de la Belgique sur la base des résultats des simulations de marché une fois qu'elles auront été réalisées ;	It will be done for the simulated scenarios (which will be decided with the CdC) and share it in the development plans

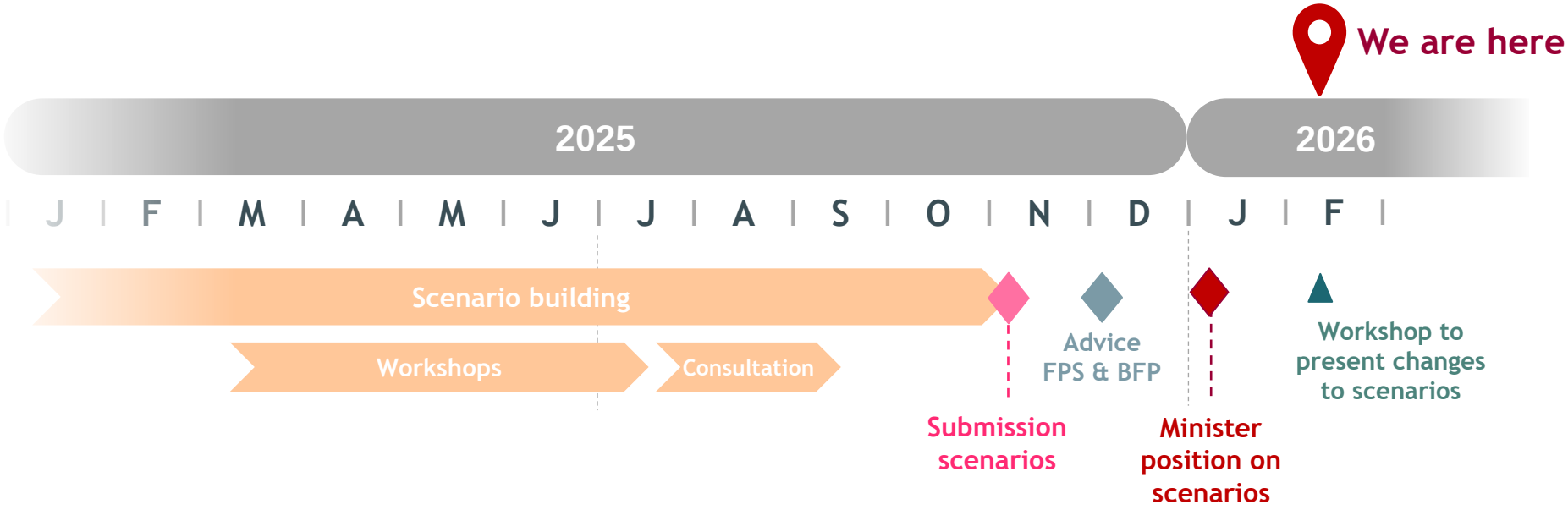
Both will be shared in the development plans for the scenarios simulated.

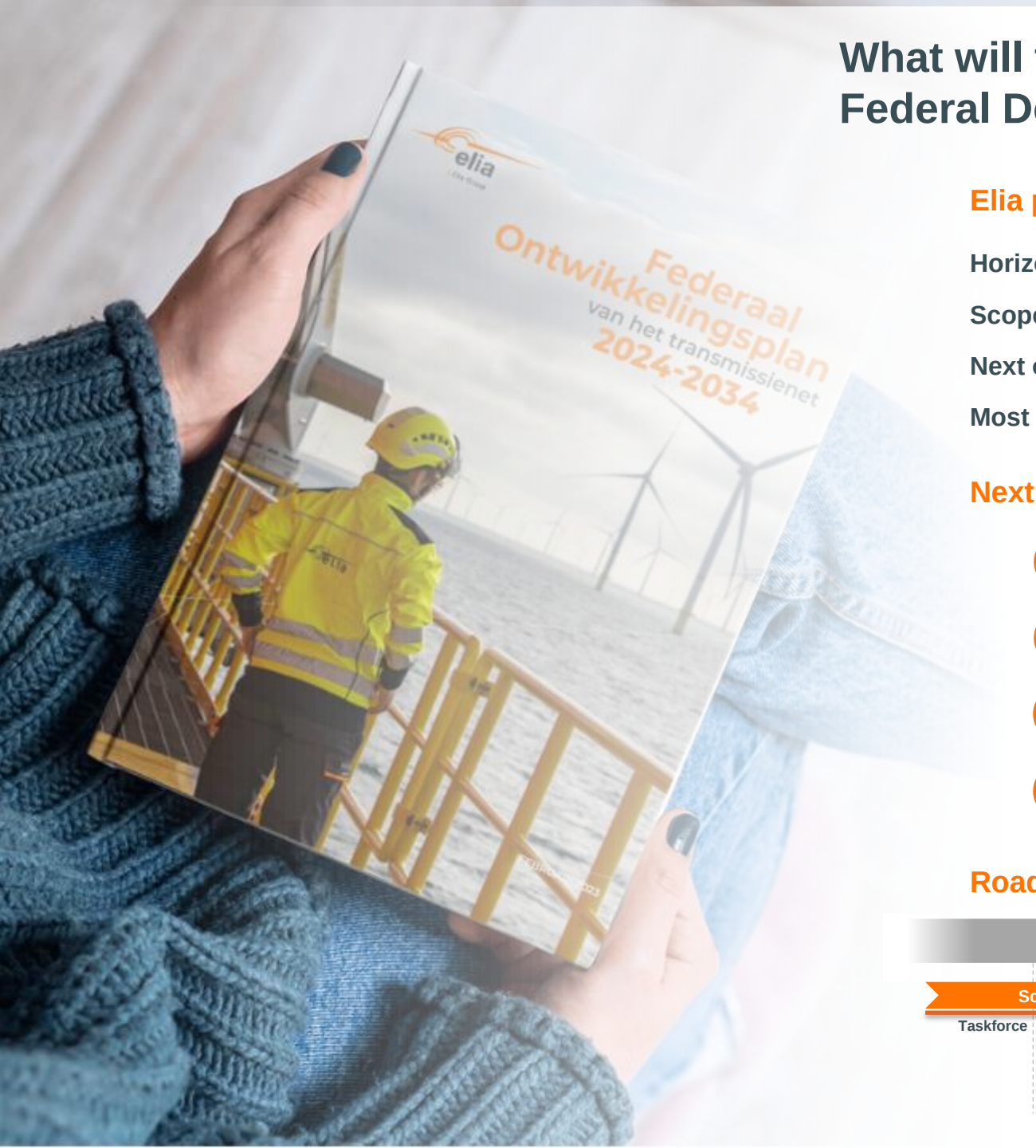
Next steps

Next steps

- **Publication of the slideset** presented to the TFME **as annex to the scenario report**
  (the public consultation scenario report will not be updated)

- **Elaboration of the development Plans Electricity and Hydrogen**
  - As a reminder: **we will not be able to simulate all scenarios and sensitivities**.
    The final scenarios to be simulated **will be decided together with the respective CdC's.**





What will the scenarios be used for?
Federal Development Plan of the electrical transmission grid

Elia publishes its Federal Development Plan (FDP) every 4 years

Horizon: +10 years

Scope: the Belgian federal electricity transmission grid (110 – 380 kV + HVDC)

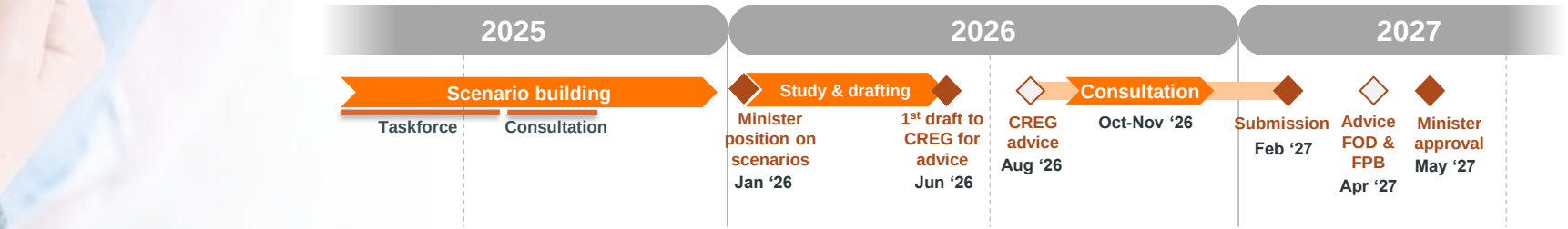
Next one to be approved by: the Federal Energy Minister (Mathieu Bihet)

Most recent version: FDP 2024-2034, approved on 5 May 2023

Next version FDP for submission in February 2027

- **Scenarios:** projections assessed up until **2050**
- **System needs:** identification of grid needs ad mid- and long term
- **Investments:** all planned grid investments, at federal level
- **Environmental impact:** through Strategic Environm. Assessment

Roadmap



What will the scenarios be used for?
National Development Plan of the hydrogen network

Fluxys publishes its Indicative National Development Plan (NDP) every year

Horizon: +10 years

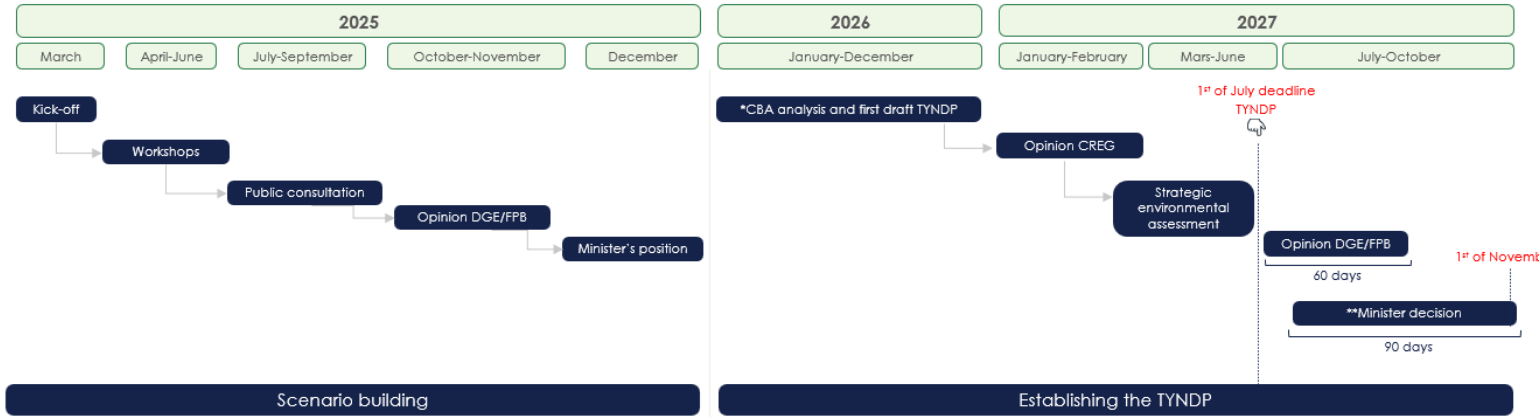
Scope: Fluxys Belgium & Fluxys LNG

Most recent version: Indicative NDP 2025-2034, published in September 2025

Next version*: Hydrogen NDP 2028-2037, for submission in July 2027

- **Scenarios:** projections assessed up until **2040**
- **System needs:** identification of network needs ad mid- and long term
- **Investments:** all planned network investments, at national level
- **Environmental impact:** through Strategic Environm. Assessment

Roadmap



*According to the new Royal Decree of May 12th, 2024

THANK YOU

for your valuable contribution
to this process!

fluxys elia
Elia Group