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Overview

1. Elia Group / ETB
2. Mission, vision & strategy
3. Elia High voltage Grid
4. Infrastructure projects (*existing & new*)
5. Connection @ Elia
 - What do we mean by connection (*aansluiting*)
 - Connection Process
 - Contract & Tariffs
 - New production unit / Modernisation (e.g. WKK)
 - Tests / Conformity
 - Grid User obligations (VSP/BSP)
 - Monetize unit (Flex & CRM)

Q&A => At any time ☺

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Elia Group

REGULATED ACTIVITIES

NON-REGULATED ACTIVITIES

- Grid management**
- System operations**
- Market facilitation**
- Trusteeship**

50hertz

- Northern/Eastern Germany TSO operator
- On- and offshore transmission systems
- 80% owned by Elia Group (20% KfW)
- Monopolistic position in Northeast Germany

elia

- National TSO
- On- and offshore transmission systems
- 99.99% owned by Elia Group
- Monopolistic position in Belgium

nemolink

- 50/50 JV between Elia and National Grid (UK)
- Grid interconnection between BE and UK
- 50% owned by Elia Group

elia group

egi

- International energy market consultancy and engineering services

realto

- European market platform
- Exchange and valorization of data and digital services
- 100% owned by Elia Group

WindGrid

- 100% subsidiary of Elia Group
- Focusing on international offshore developments

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Legal structure and shareholder structure

Publi-T
44.82%

Publi-part
3.32%

Free float
51.86%

Elia Group SA/NV

eurogrid
80%

KfW
20%

Elia Transmission Belgium SA/NV
nemolink

Regulated Business

Non-regulated Business

12.9%

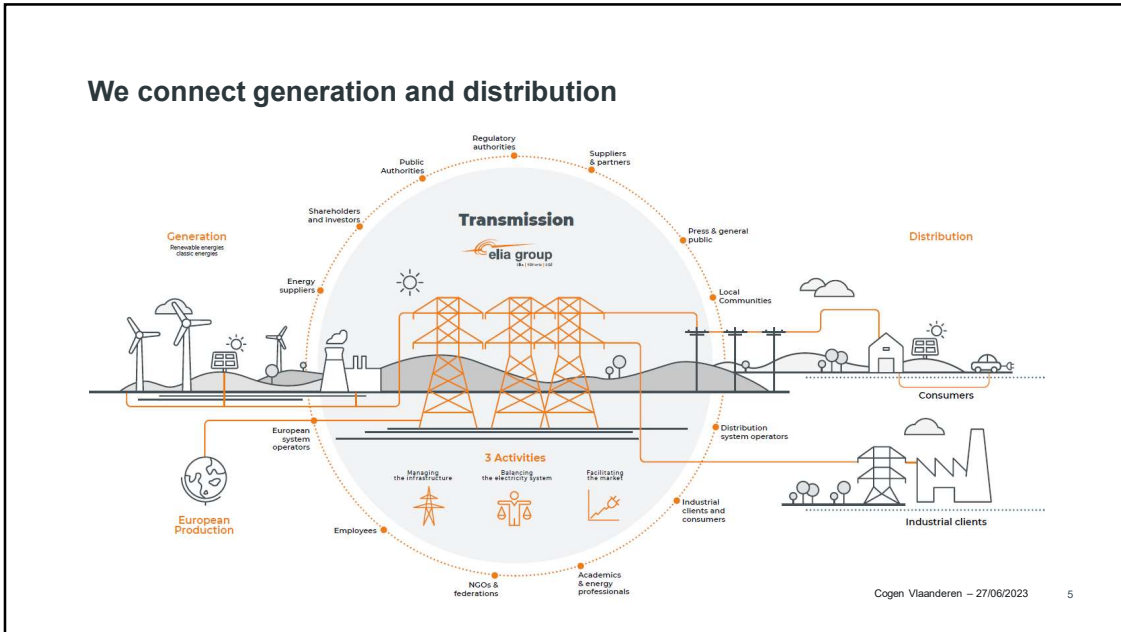
of outstanding shares are held by institutional investors

3.2%

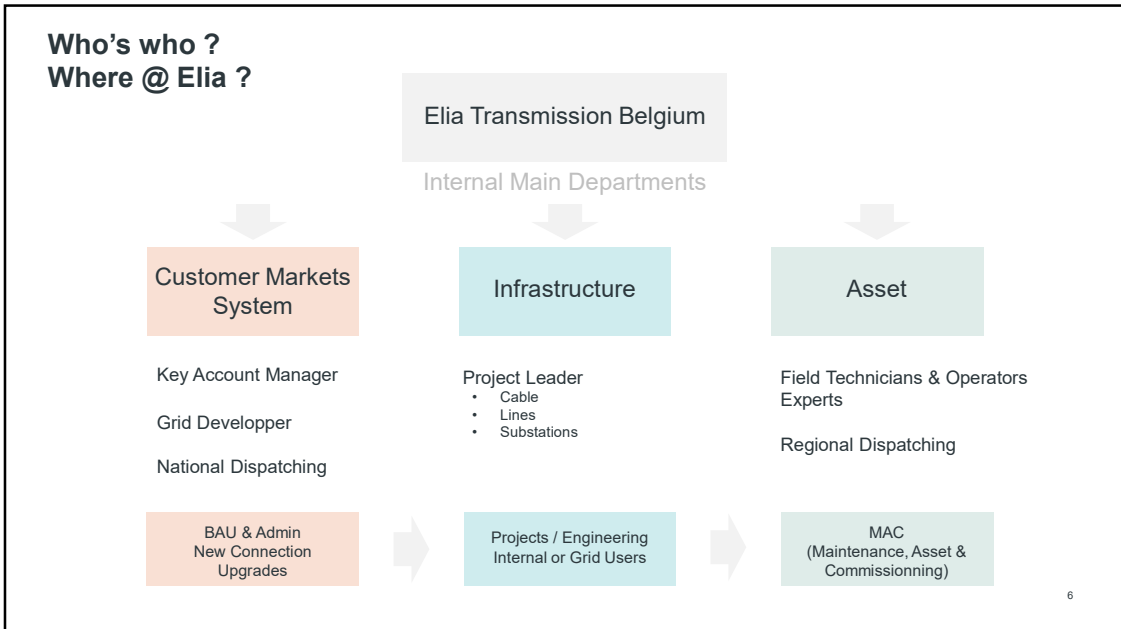
of all investors are ESG focused funds

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Elia @ Cogen ?

ELIA

David Zenner Manager Customer Relations Keizerslaan 20, B-1000 Brussel T+32 (0)3 640 07 79 F -32 (0)3 640 08 06 david.zenner@elia.be www.elia.be

Elia is de netbeheerder voor het federale transmissienet voor spanningen boven 70 kV en tevens netbeheerder voor het plaatselijk vervoersnet in Vlaanderen met spanningen van 36 kV tot 70 kV. Elia is het rechtstreekse aanspreekpunt voor alle aansluitingsaanvragen van meer dan 25 MW of na doorverwijzing door de distributienetbeheerder voor lagere vermogens.

<https://www.elia.be/en/contact-us/customers>

Contact your Key Account Manager

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El-technics
 El-technics BVBA is een gespecialiseerd onderhoudsbedrijf in de BREE en VME-sector. Het bedrijf is opgericht in 2012. Service en kwaliteit, veiligheid, integriteit en een solide partner willen worden voor onze klanten.

Elugie
 Elugie steekt naar energieefficiëntie en CO2-reductie duurzame maatschappelijk verantwoordelijke energie. Wij willen ons gebouwd zelf laten voorzien in haar eigen groene energie om een duurzame werke en prestaties voor onze klanten en de wereld. Energie die CO2-neutraal is (en dus minder vervuult). Energie die efficiënt wordt opgeleverd en opgeleverd (en dus minder verbruikt). Energie die maximaal overblijft in het dat minder verspreid wordt. Een echte win-win situatie voor mens en milieu.

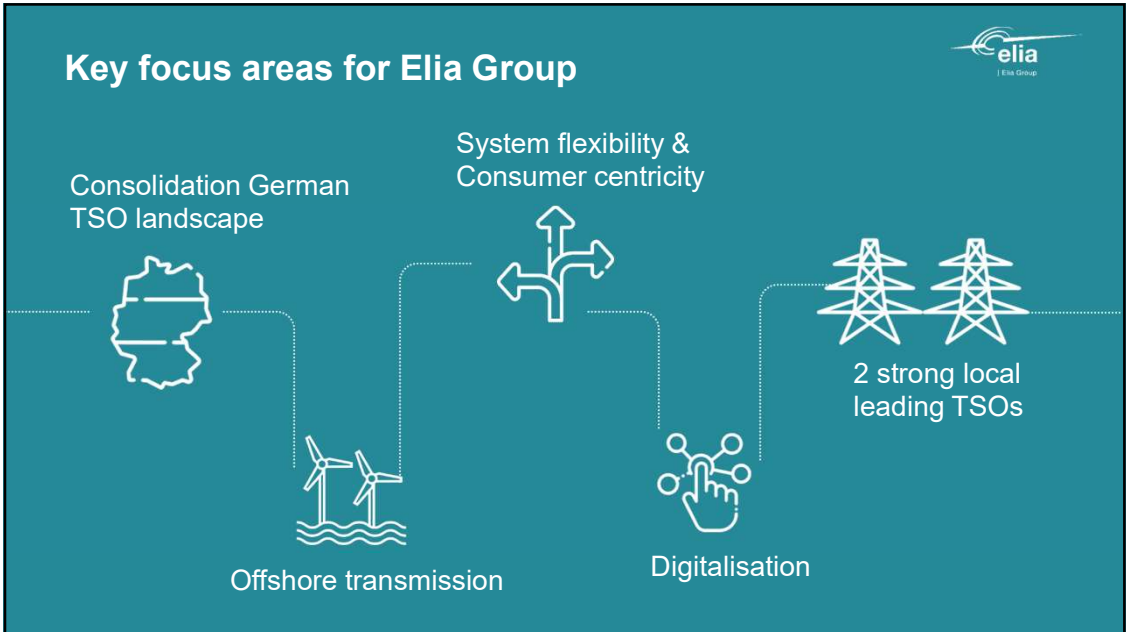
Elia
 Elia is de Belgische voorloper in water- en elektriciteitsnetwerken, waarbij wereldwijd ingenieurs wordt ingezet in maatschappelijk verantwoordelijke elektriciteits- en gebouwverduurzaming en productie, maar voor echte energielevering naar de consument.

WKK-Wegwijzer 2019 - 83

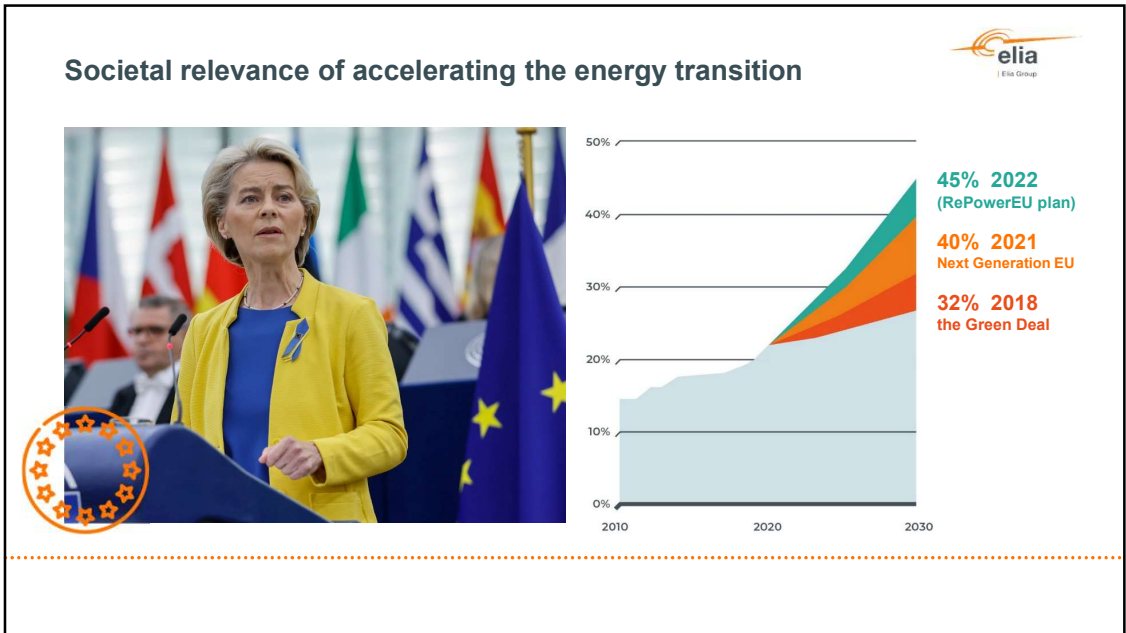
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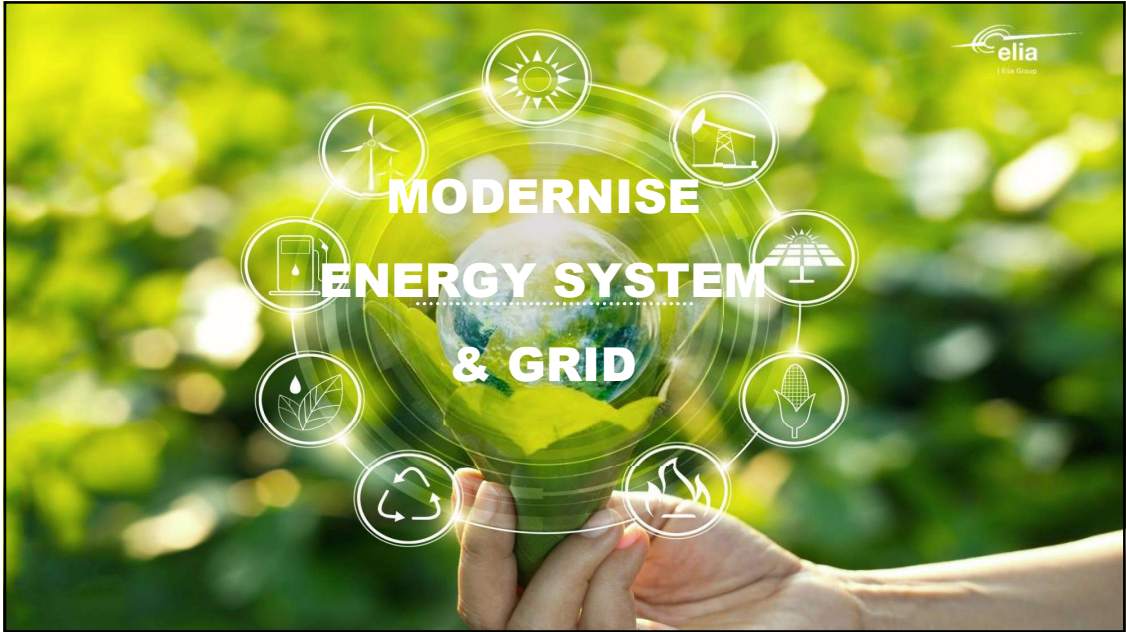
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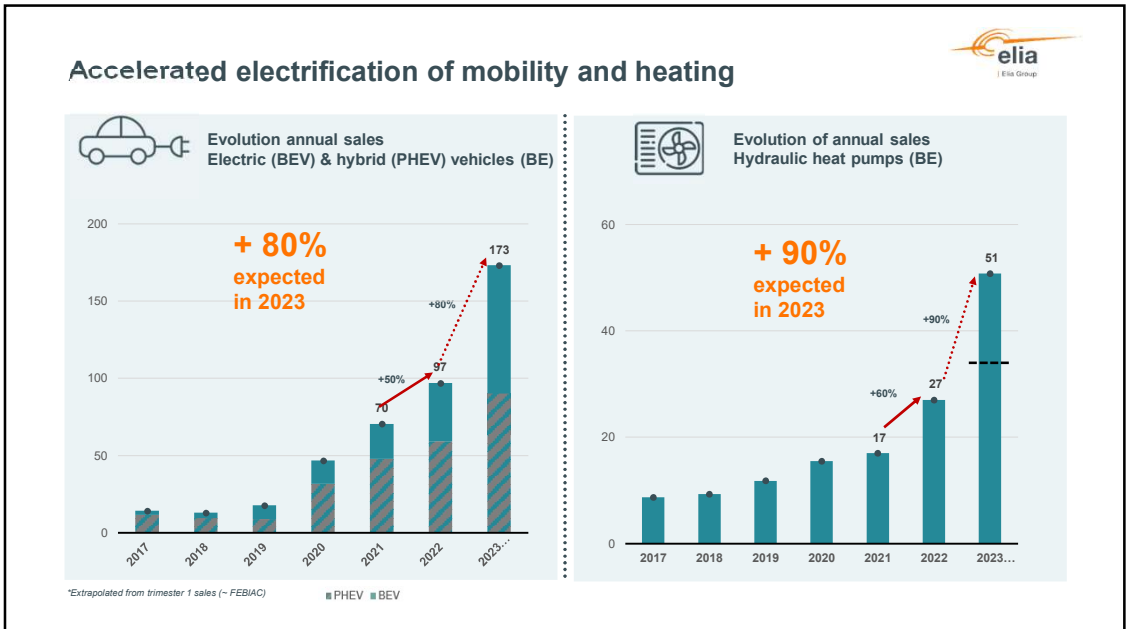
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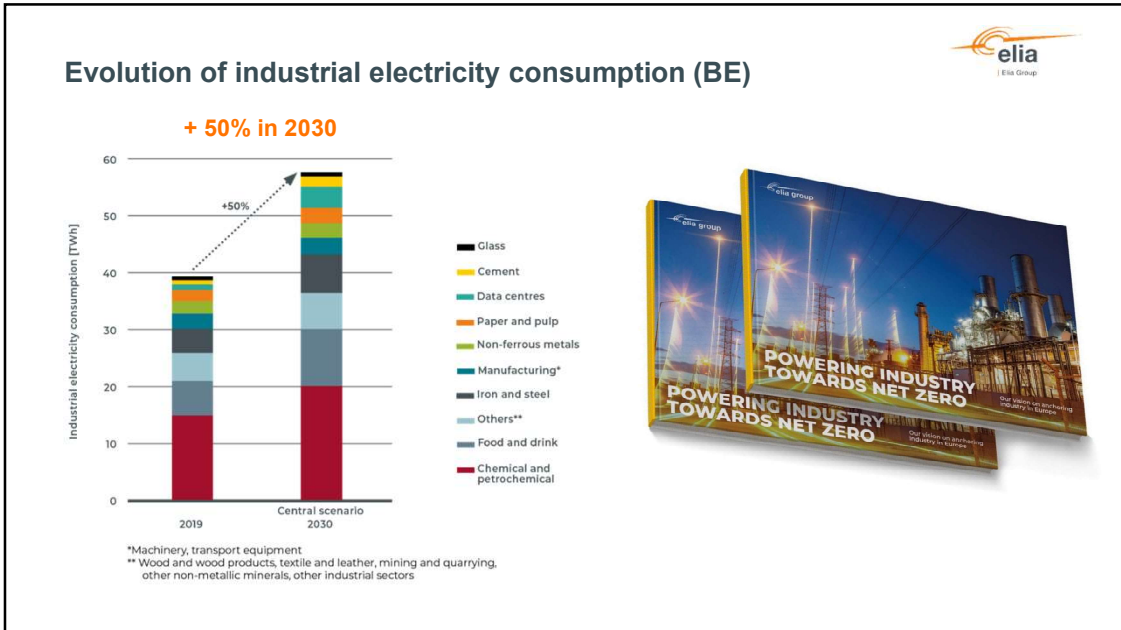
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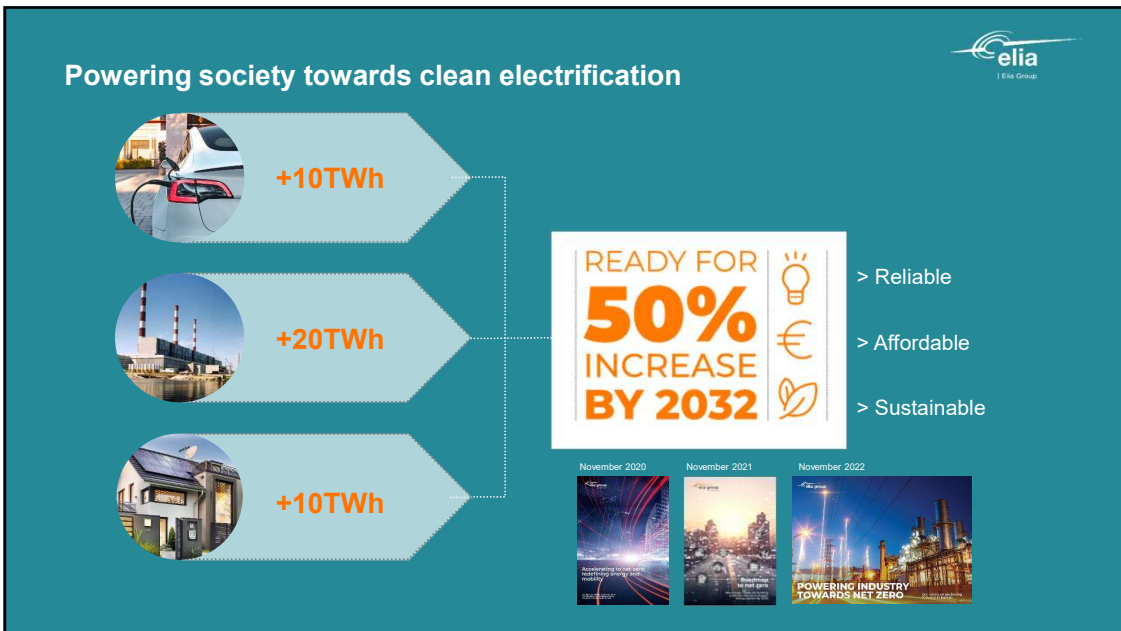
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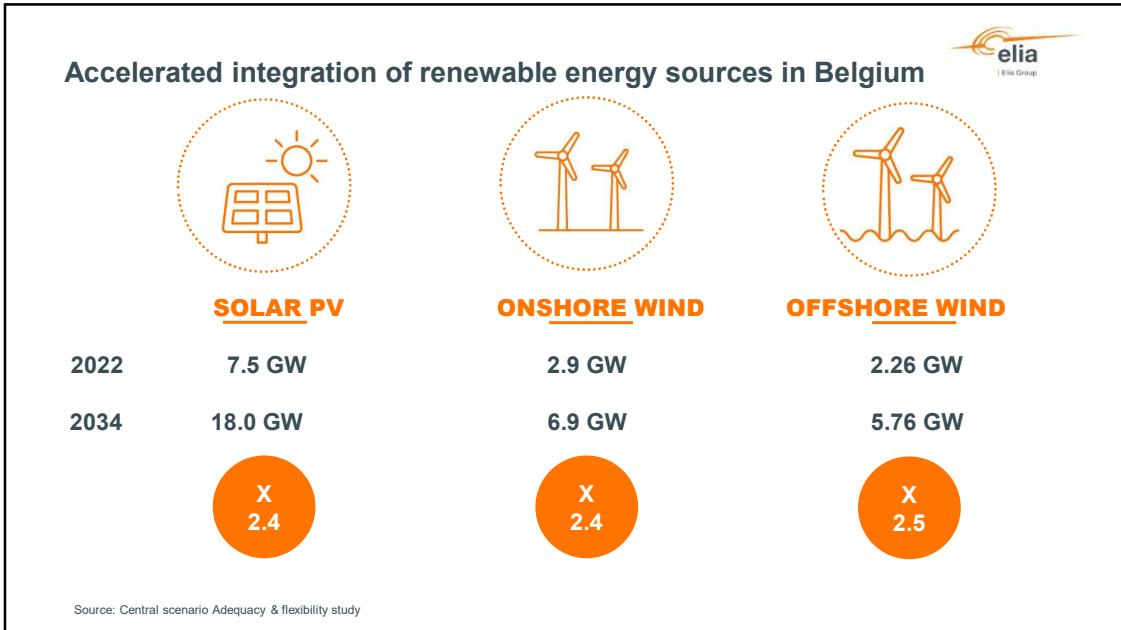
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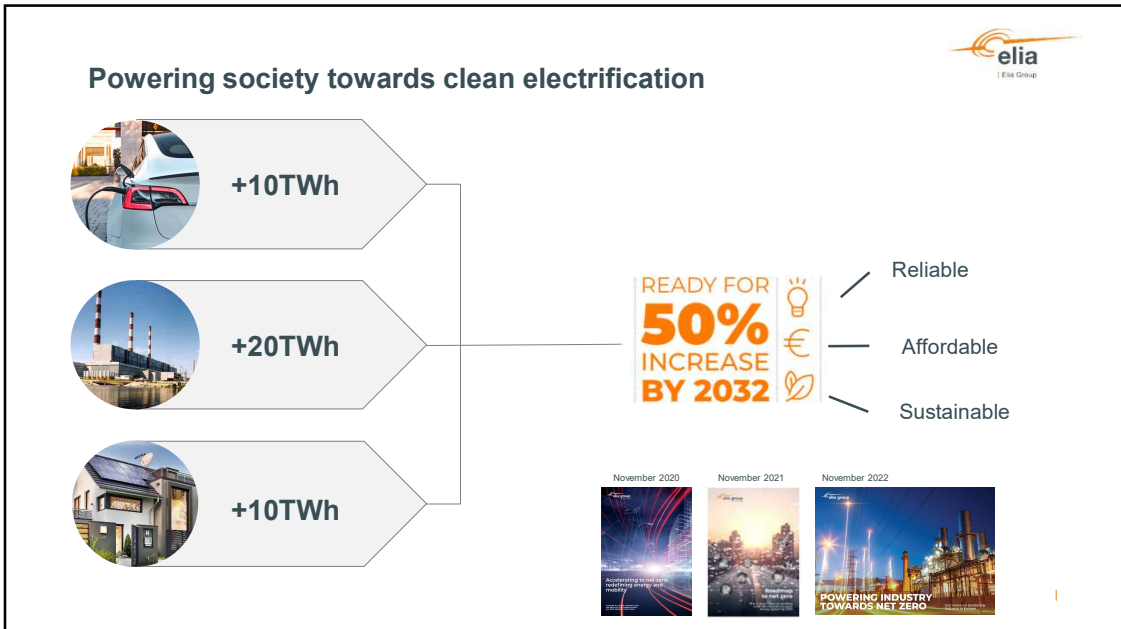
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Our best response as TSO:
Make electrification happen along 3 pillars



- 1** 
Deliver infrastructure on time for electrification



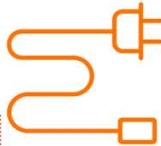
- 2** 
Strengthen Security of supply - Adequacy

- 3** 
Unlock consumer flexibility to follow variable RES


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Our core tasks

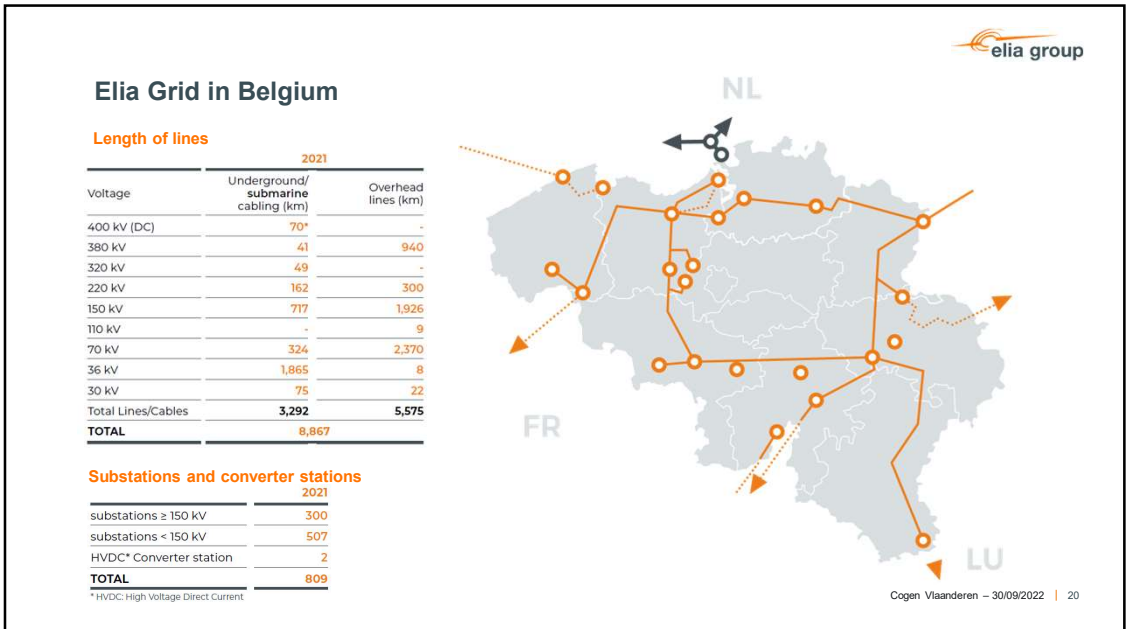
- 
Grid Ownership
We prepare to deliver the infrastructure of the future
- 
System control
We maintain the balance
- 
Market Facilitation
We are part of the European integrated market

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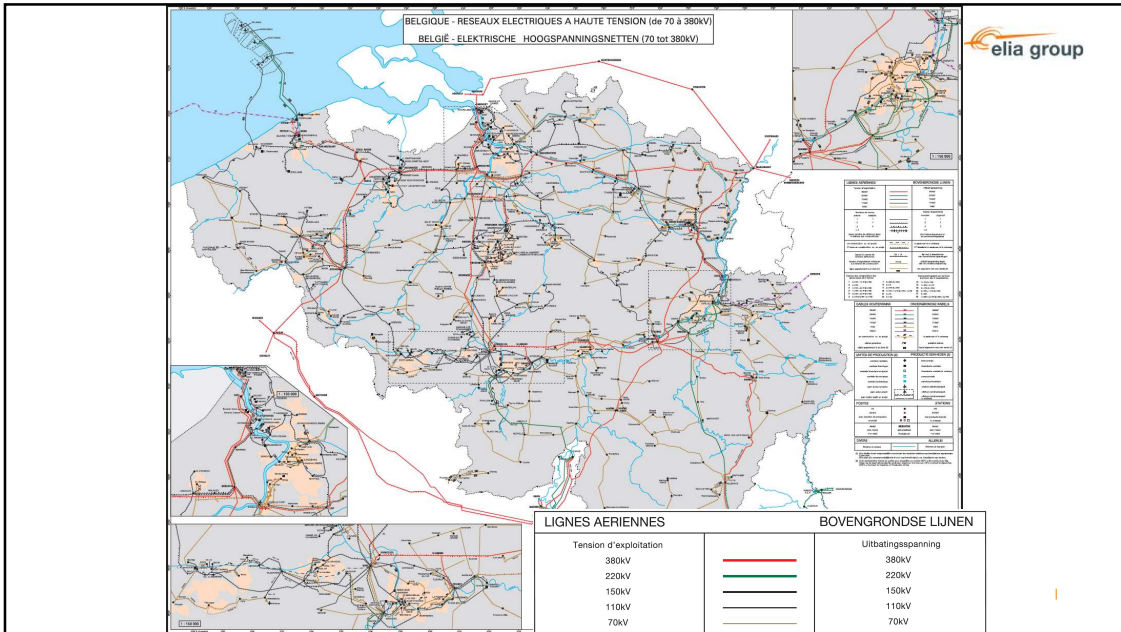
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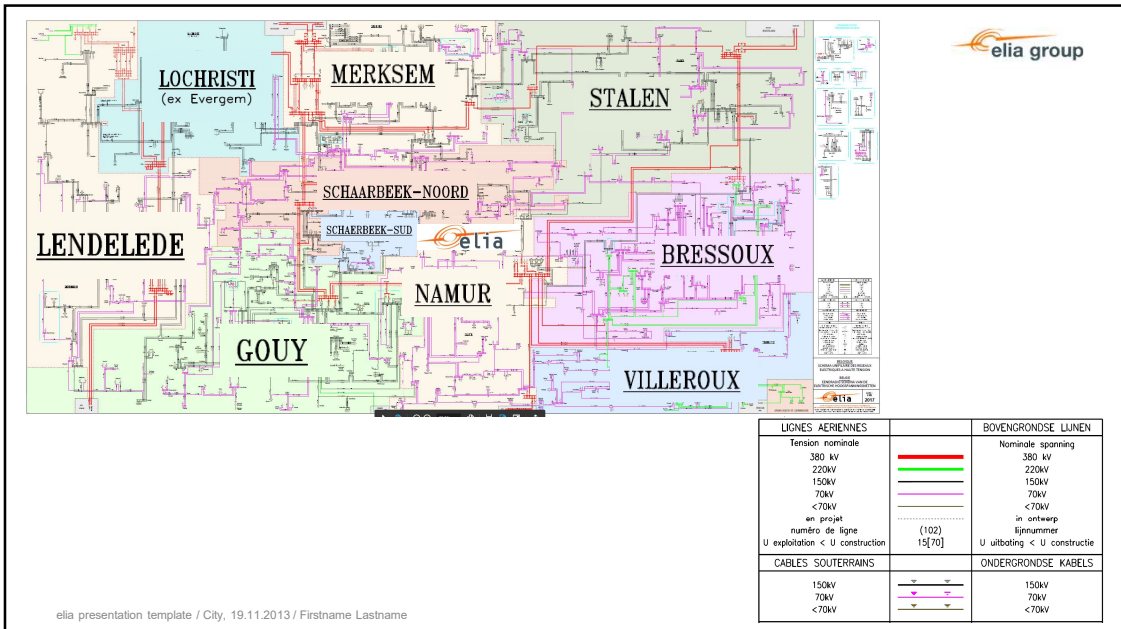
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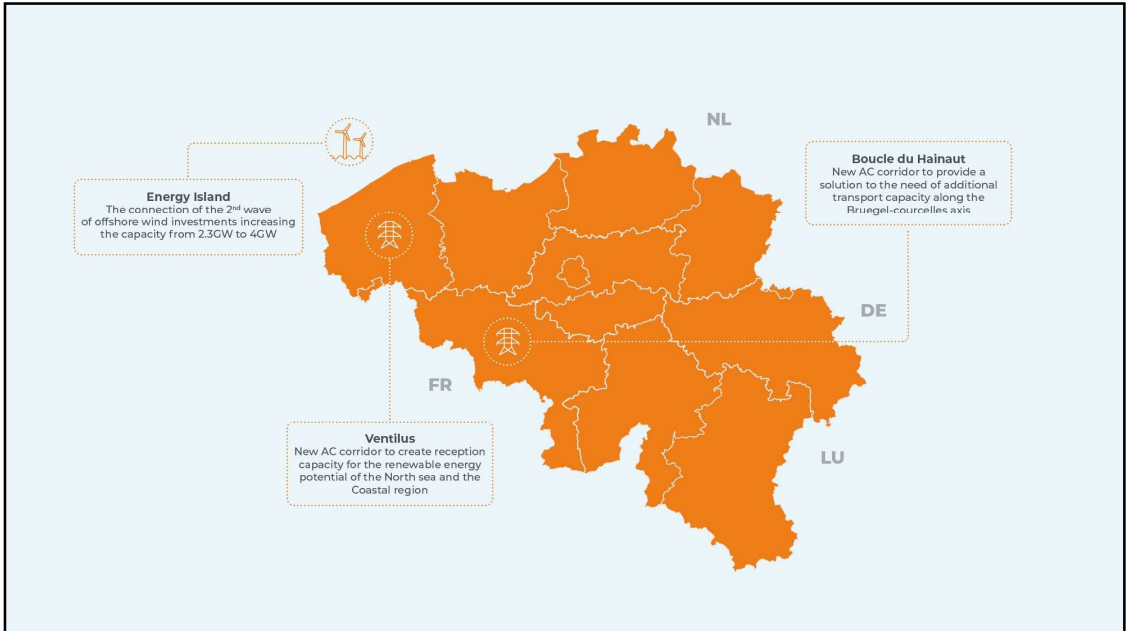
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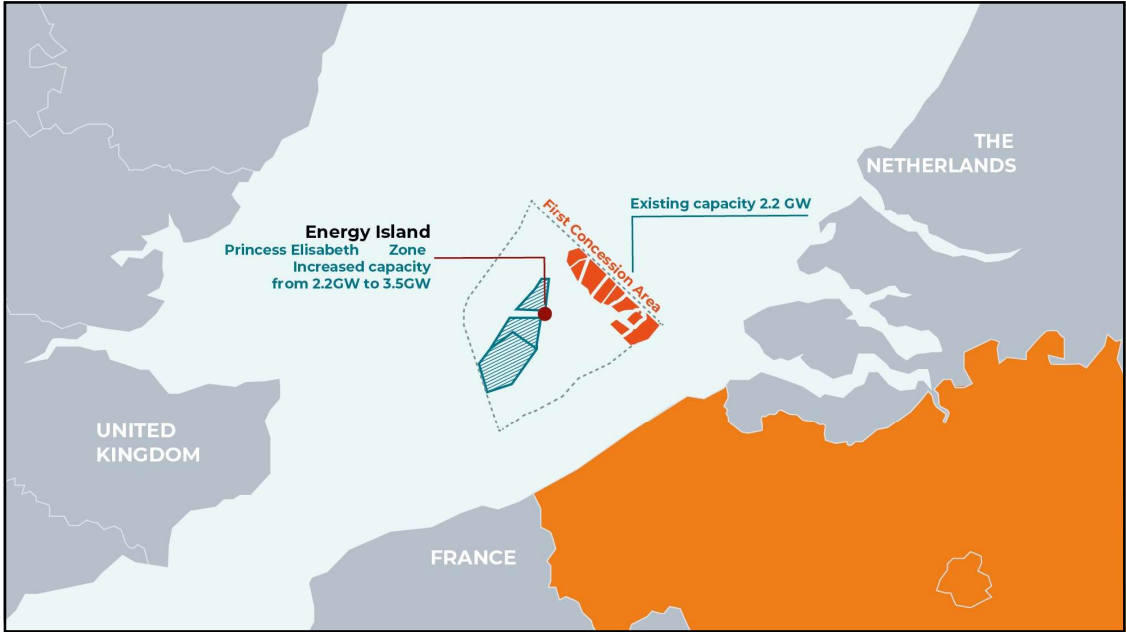
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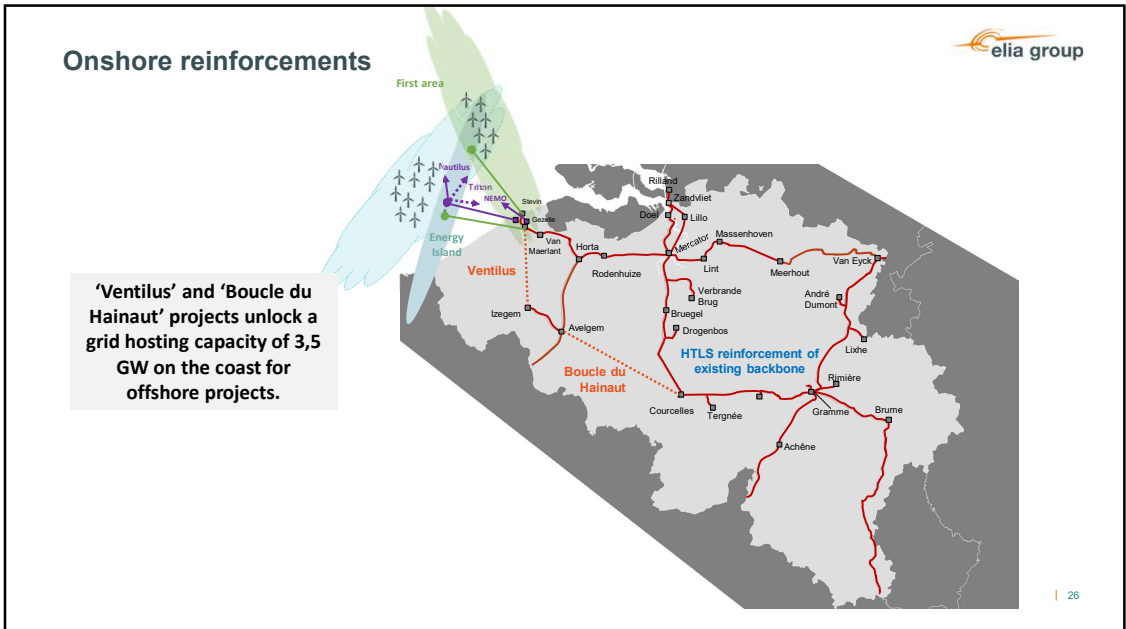
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Towards a more interconnected EU grid



Nemo Link

Subsea interconnector with the UK

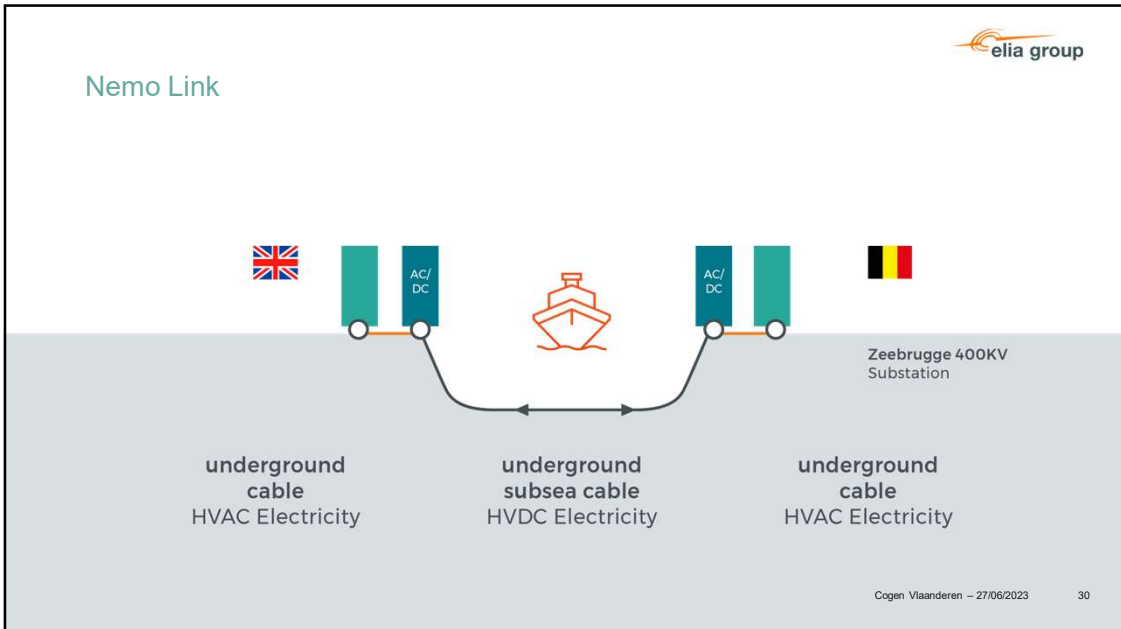
- First interconnector with the UK
- Elia's first subsea electricity cable
- Belgium's first high voltage direct-current (HVDC) project
- Collaboration with British system operator National grid
- Investment of around €650 million (half covered by Elia)
- Operational since Q1 2019

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Towards a more interconnected EU grid



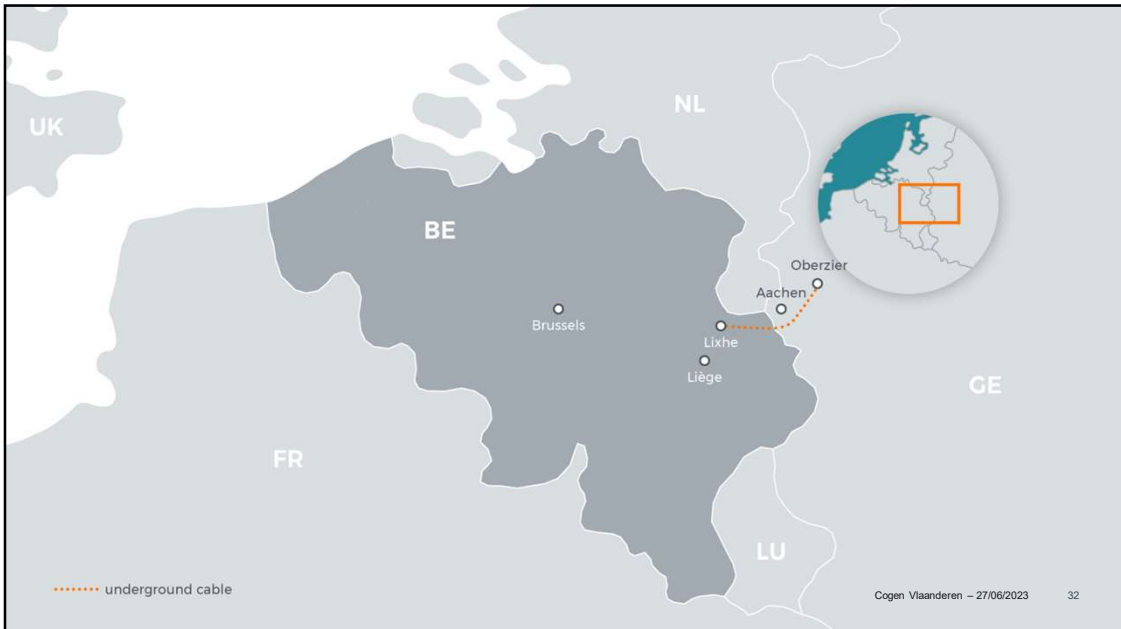
Alegro
First interconnector with Germany

ALEGrO

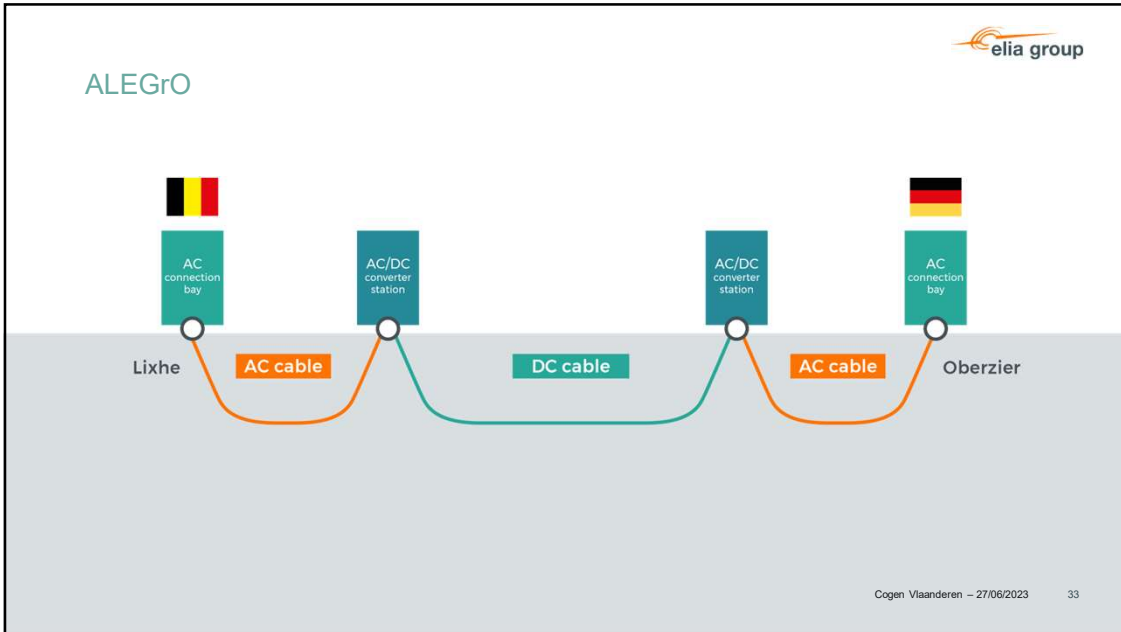
- First HVDC interconnector between Belgium (Elia) and Germany (Amprion)
- European priority project
- 90 km of underground cables between Lixhe (BE) and Oberzier (GE)
- Transmission capacity of around 1,000 MW
- Investment: €500 million (50% by Elia)
- Operational end 2020

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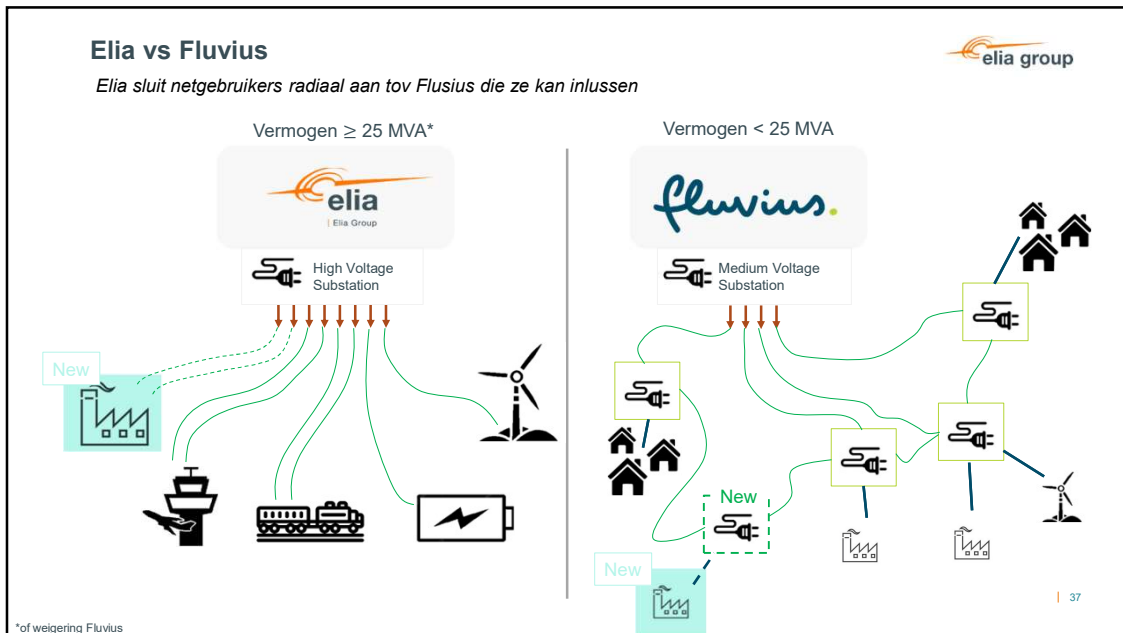
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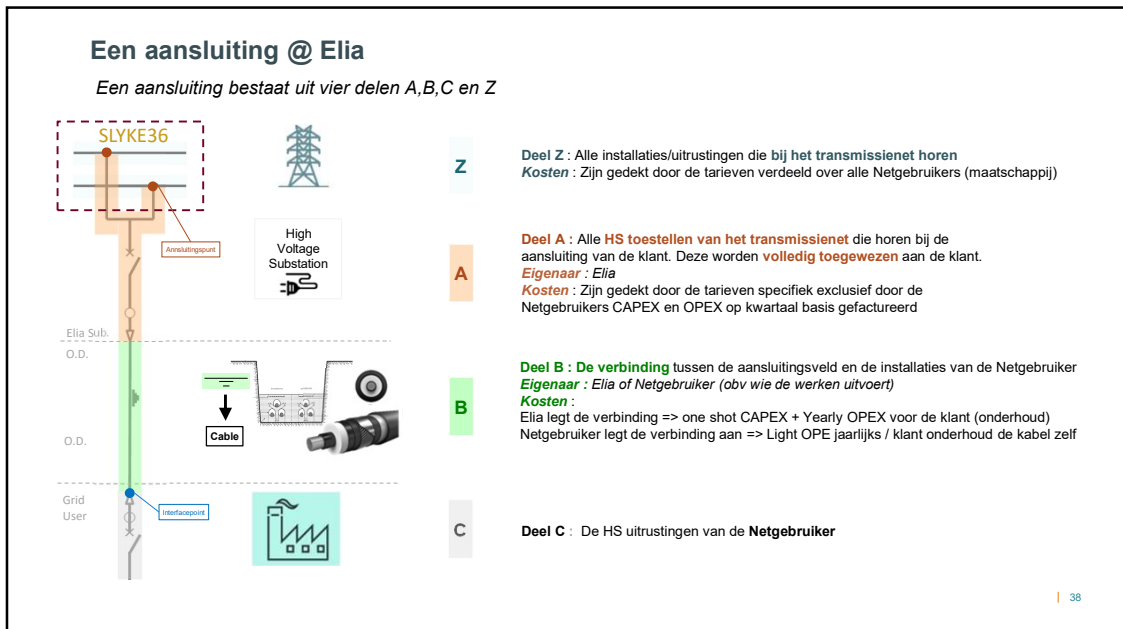
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This slide is titled '5. Connection @ Elia'. It features the 'elia group' logo in the top right corner. The text 'Title of presentation | 34' is located at the bottom right.

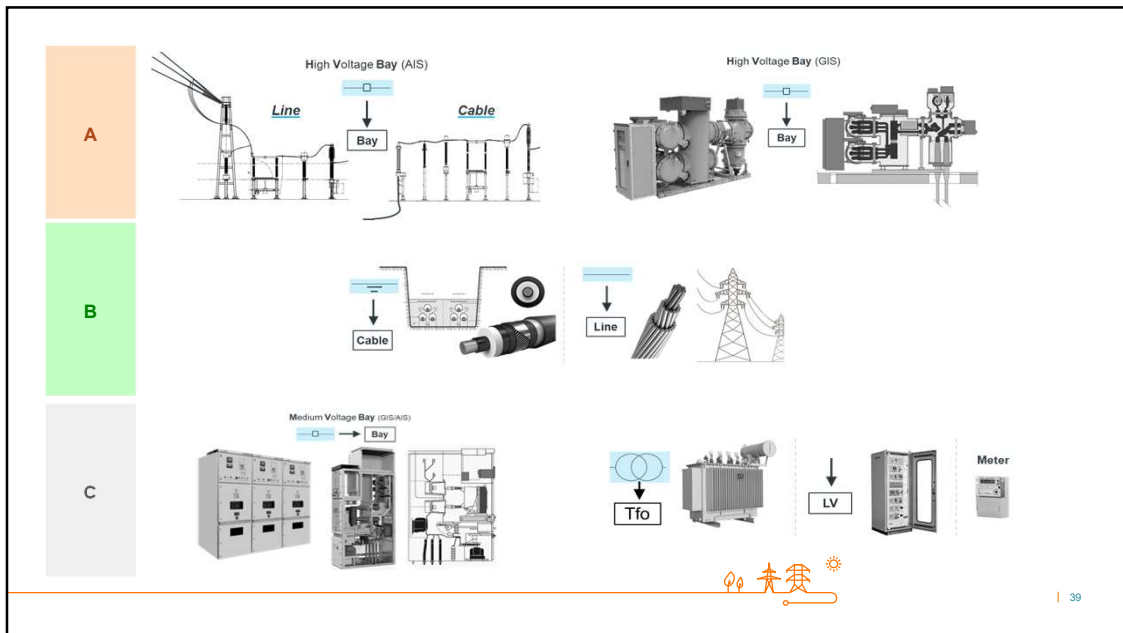
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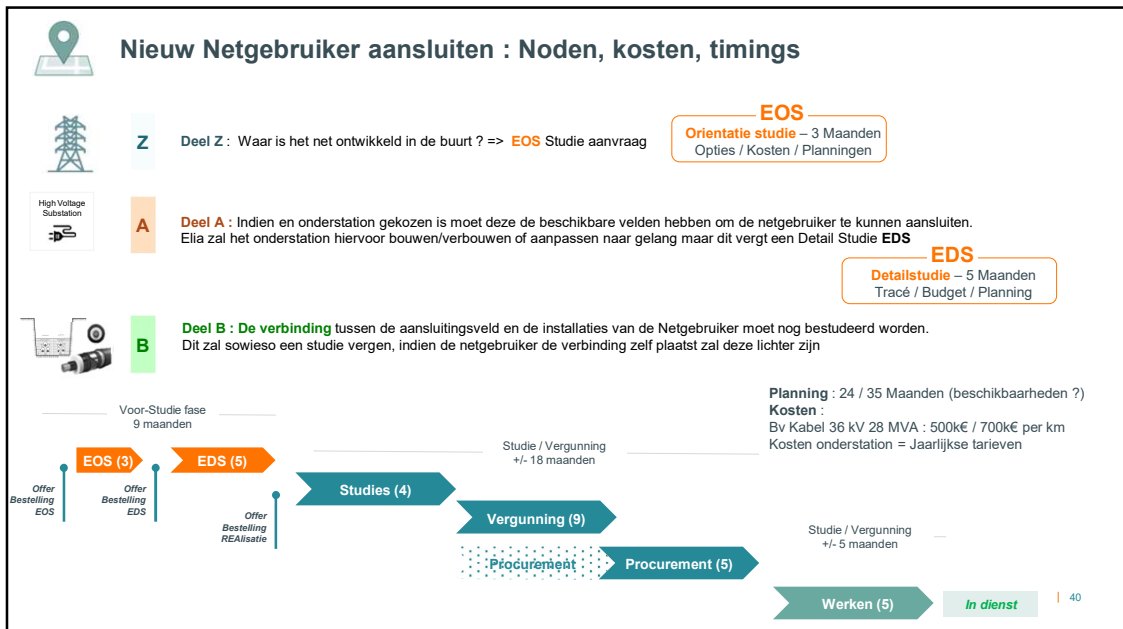
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Do you want to connect to the Elia Grid?

> 25 MVA
Connection on Elia grid

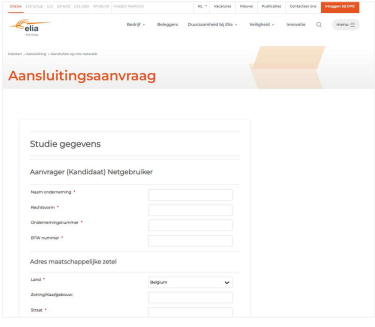
< 25 MVA
Refused to connect by distribution grid operator

Connection on industrial site, that is connected to Elia grid

Info Required
cs@elia.be

- ✓ Geographical location
- ✓ Type of installation
- ✓ Installed power
- ✓ Pcc contribution
- ✓ Single line diagram
- ✓ Timing

[Aansluitingsaanvraag \(elia.be\)](https://www.elia.be/aansluitingsaanvraag)
[Formulaire de demande d'étude \(elia.be\)](#)



Contact KAM of industrial site
[List of APs \(elia.be\)](#)

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Connection Contract

Infrastructure

Connection contracts govern the contractual rights and obligations of both Elia and the grid user in relation to, among other matters:

- rights of use
- ownership
- technical requirements
- operation of connection facilities.

Fixed Costs




Access Contract

Energy / Grid Usage

Once an access request has been submitted, the requester will receive an access contract. This contract governs the **rights and obligations in force regarding use of the Elia grid**.

It applies to all access points to which the access holder has been granted access and which are recorded in the register of access points. The access contract will only come into force once a **bank guarantee** has been submitted.

Variable Cost => Usage







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Wat zijn de Tarieven

Waarvoor en wat betaald een Netgebruiker

Tariff Structure

			
<p>1 Connection</p> <ul style="list-style-type: none"> • Tariff for connection to the grid 	<p>2 Access</p> <ul style="list-style-type: none"> • Tariffs for the management and development of the grid infrastructure • Tariff for the management of the electric system • Tariffs for compensation of imbalances • Tariff for market integration 	<p>3 Balance</p> <ul style="list-style-type: none"> • Tariffs for maintaining and restoring of the residual balance of the individual responsible parties 	<p>4 Levies</p> <ul style="list-style-type: none"> • Tariffs for public service obligations and taxes & Levies



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Wat zijn de Tarieven

Waarvoor en wat betaald een Netgebruiker




1.		<p>CONNECTION TARIFFS</p>	<p>Grid User</p> 
<i>Invoiced to grid user</i>			
2.		<p>TARIFFS FOR THE MANAGEMENT AND THE DEVELOPMENT OF THE GRID INFRASTRUCTURE</p> <ul style="list-style-type: none"> • Tariffs for the monthly peak for an offtake point • Tariffs for the yearly peak for an offtake point • Tariffs for the contractual power for an offtake point <p>TARIFFS FOR THE MANAGEMENT OF THE ELECTRIC SYSTEM</p> <ul style="list-style-type: none"> • Tariffs for the management of the electric system for an offtake point • Tariffs for the offtake or injection of additional reactive energy for an offtake or injection point <p>TARIFFS FOR COMPENSATION OF IMBALANCES</p> <ul style="list-style-type: none"> • Tariffs for the power reserves and black-start <p>TARIFFS FOR MARKET INTEGRATION</p> <ul style="list-style-type: none"> • Tariffs for market integration 	<p>Access Holder</p> 
<i>Invoiced to access holder</i>			
3.		<p>TARIFFS FOR THE MAINTENANCE AND RESTORING OF THE RESIDUAL BALANCE OF THE INDIVIDUAL BALANCING RESPONSIBLE PARTIES.</p>	<p>BRP</p> 
<i>Invoiced to balancing responsible party</i>			
4.		<p>TARIFFS FOR PUBLIC SERVICE OBLIGATIONS, TAXES AND LEVIES</p>	<p>Access Holder</p> 
<i>Invoiced to access holder</i>			

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Facturatie & tarieven

Het gebruik van het Elia-net en de aangeboden ondersteunende diensten zijn onderworpen aan de door de CREG gereuleerde tariefvoorwaarden zoals vermeld op de factuur.

Toegang

Voor het injecteren of afnemen van elektriciteit in of van het Elia-net zijn de toegangspunten onderworpen aan gereuleerde tarieven die van toepassing zijn op de aan de toegangspunten gemeten volumes.

Toelichting bij uw factuur
 Simulatie van uw factuur (tarieven 2022)
 Simulatie van uw factuur (tarieven 2023)
 Tarieven 2020-2023
 Tarieven 2016-2019
 Ons contacteren

Aansluiting

De uitvoering, aanzienlijke aanpassingen, terbeschikkingstelling en het beheer van de aansluiting op het Elia-net zijn onderhevig aan door de CREG gereuleerde en goedgekeurde tarieven en worden per trimester door Elia in factuur gebracht.

Toelichting bij uw factuur
 Tarieven 2020-2023
 Tarieven 2016-2019
 Ons contacteren

Onevenwicht

Elia doet beroep op BRPs (Balance Responsible Party) om het evenwicht in hun regelzones te behouden. Elke BRP is verantwoordelijk voor het evenwicht per kwartaal tussen de afnames en injecties die in zijn evenwichtstrimester worden uitgevoerd. Als er een onevenwicht wordt vastgesteld, is het onevenwichtstarief van toepassing.

Toelichting bij uw factuur
 Tarieven voor onevenwicht 2020-2023
 Tarieven voor onevenwicht 2016-2019
 Tarieven voor externe inconsistentie 2020-2023
 Tarieven voor externe inconsistentie 2019
 Verifiëren de het federaal elektriciteitsnet
 Ons contacteren

Bijkomende meetdiensten

De marktspelers kunnen profielen van bijkomende meetdiensten die per trimester door Elia in factuur worden gebracht.

Tarieven 2022
 Tarieven 2021
 Bijkomende meetdiensten

Diverse documenten

Tarieven ODV & toeslagen 2022
 Tarieven ODV & toeslagen 2021
 Tariefmethodologie
 Structuur tarieven 2020-2023 en evoluties (in het Engels)

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Unit Type ? WKK ?

Classification @ Cogen

Kantoren
Appartementen
Sportcomplexen
Zwembaden

Zorginstellingen
Ziekenhuizen

Glaspuinbouw

1 kW 10 kW 50 kW 100 kW 1 MW 100 MW

Micro-WKK Kleinschalige WKK Grote WKK

Woningen

Industrie
Warmstnet

Classification @ Elia

kV

110 kV

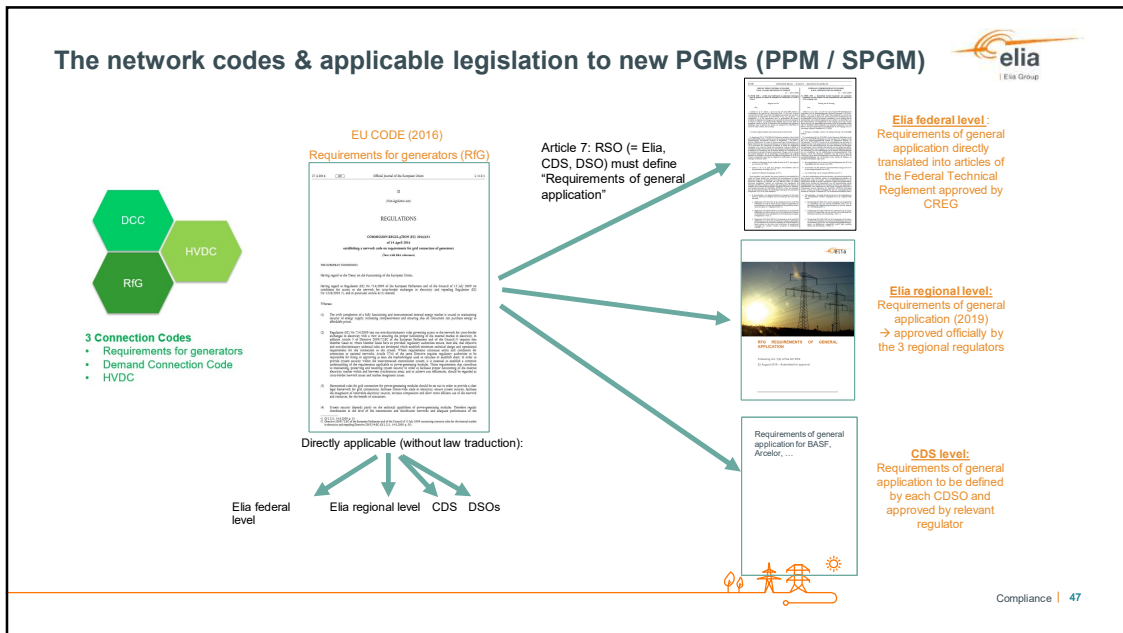
0.0008 1 25 75 100 MW

For storage devices, the classification does not depend on the voltage level

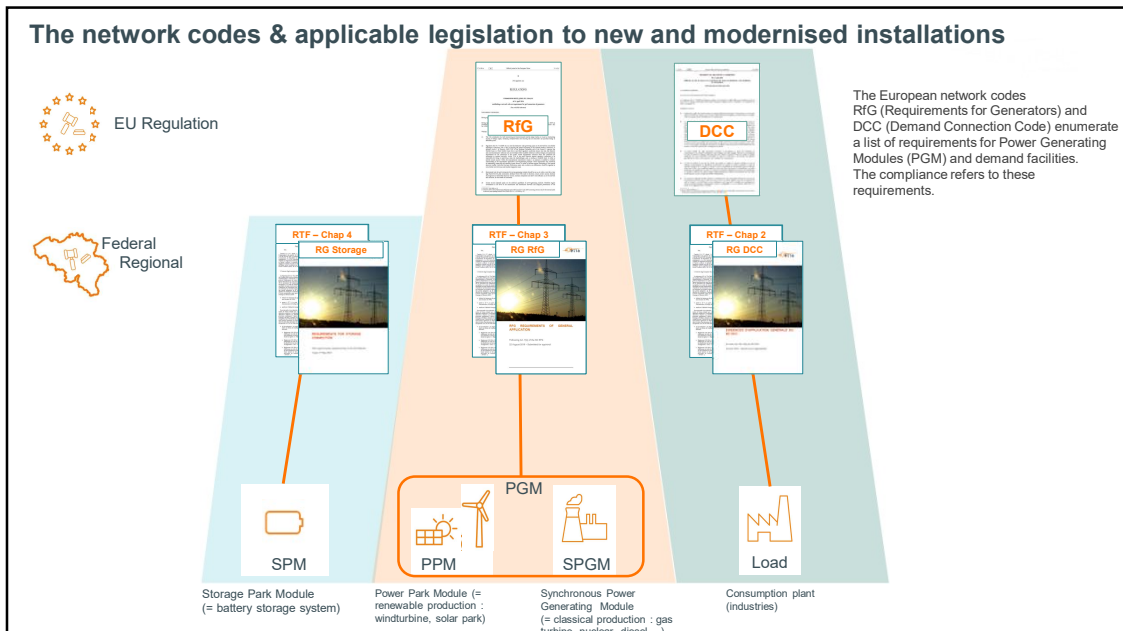
Figuur 15 Overzicht van het elektrisch vermogen van WKK's en daarbij horende toepassingen

OBC Discussion 08/04/2021 46

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Compliance process : EON, ION, FON, LON (from RfG)

EON : Energisation operational notification (mandatory for PGM and storage type D, optional for other types)

= Autorisation of energization of the internal network of the PGM by using network connection

→ Conditions for Elia to give an EON (see compliance check-list) :

- Agreement on modification of the connection (EDS or minor change) → Visa for MSI to be delivered by Elia in case of EDS
- data questionnaire and PGM internal compliance statements (RGIE)

ION : Interim operational notification (mandatory for PGM and storage type D, optional for other types)

= Autorisation to operate/inject power for the PGM by using the network connection for a limited period of time (max 24 months)

→ Conditions for Elia to give an ION (see compliance check-list) :

- compliance to requirements via simulation results & models, PGM internal compliance statements (RGIE) and planned tests

Remark: an extension (derogation) of the period of time is possible under condition of substantial progress

FON : Final operational notification (mandatory for all PGMs)

= Autorisation to operate the PGM by using the network connection

→ Conditions for Elia to give a FON (see compliance check-list) :


- Tests successful
- compliance check-list is fully validated by Elia

LON : Limited operational notification (applicable to all PGMs that already received a FON)

= Autorisation to operate the PGM after significant modification or failure leading to non-compliance

→ Conditions for Elia to give an LON (valid for max 12 months) while the FON has been suspended :

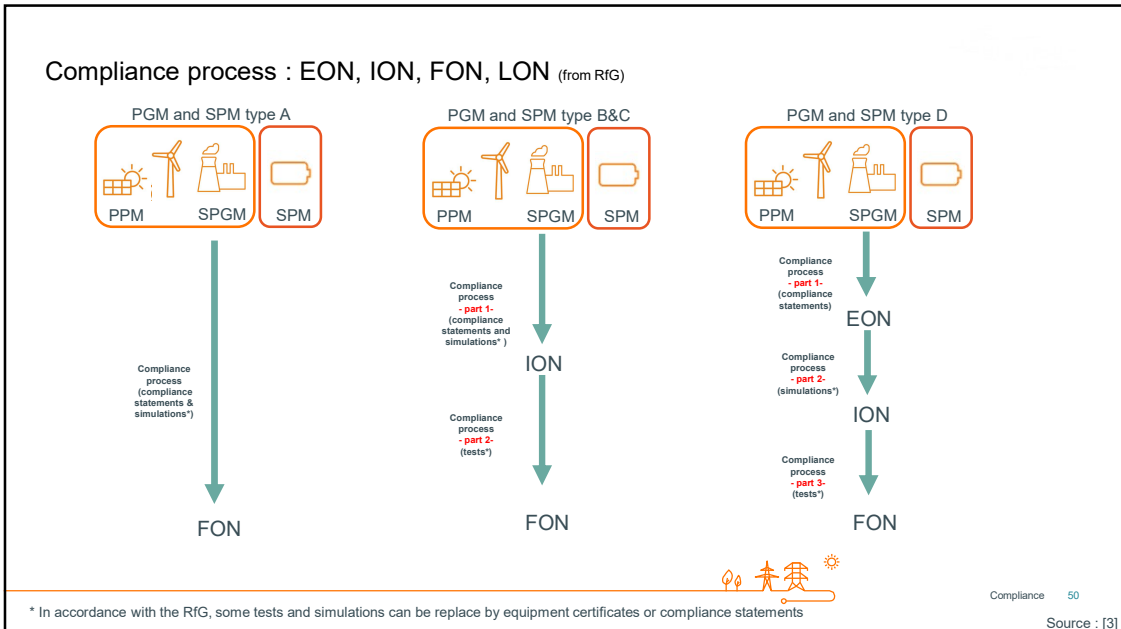
- there is a list with the unresolved issues and the expected solutions



Compliance | 49

Remark : the RfG code foresees a derogation process to some requirements (art 62) to be submitted to the regulator.

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Modernisation: when ?

- **Which conditions for a substantial modernisation RfG or DCC ?**
 - 1) to be an existing installation (see definitions in back-up slides)
 - 2) to meet the criteria defined by Elia
- The regulator has to decide (= **publication of a decision !**):
 - if the existing installation (RfG or DCC) meets the criteria for a substantial modernisation
 - which requirements applicable to the new installations are applicable to the modernized existing installation
- Elia has to submit a file to the regulator (CREG or regional regulator) for **each** modernisation case (see guidelines for the process)

Guidelines for substantial modernisation (federal level)



Guidelines for substantial modernisation (regional level)



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Criteria for a substantial modernisation

Guidelines for substantial modernisation (federal level)



Guidelines for substantial modernisation (regional level)



- A substantial modernisation takes place when the modifications to an existing installation (production or demand facility), on the basis of the assessment criteria defined by Elia, lead to a full or partial technical compliance of the existing installation to the new requirements.
- Substantial modernisation criteria for existing generation units (RfG) :
 - substantial modernisation only applicable to existing types C & D generation units
 - 3 different criteria trigger a substantial modernisation (not cumulative) :
 - 1) category switch (→ type C or type D) : full modernisation
 - 2) nominal power increase :
 - between 20% and 50% increase: partial modernisation → see table in the guidelines
 - more than 50% : full modernisation
 - 3) renewal of an equipment : partial or full modernisation
 - limiting elements are taken into account for criteria 2 & 3
- Substantial modernisation criteria for existing demand facilities (DCC):
 - only the renewed element in an existing demand facility must be compliant with new requirements
 - the renewed element cannot be a limiting element regarding the future compliance of the whole demand facility
- Replacement of an element by a spare part never triggers a substantial modernisation

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Which requirements are applicable in case of substantial modernisation ?

- For existing generating units (RfG) :

Check-list for the compliance (only for PGMs)

- Modernized existing generating units must be compliant with part or all requirements applicable to a new unit according to the substantial modernisation criteria
- !! Regulator validates via an official decision which requirements are applicable to the modernized existing unit
- ION/FON process applicable (to be confirmed)

- For existing demand facilities (DCC) :
 - only the renewed element in an existing demand facility must be compliant with requirements applicable to new demand facilities
 - the renewed element cannot be a limiting element regarding the future compliance of the whole demand facility
- Only the renewed element is subject to modernisation
- !! Regulator validates each DCC modernisation case via a decision



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In Operations => check ☺

Obligation => ☹

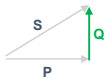


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Contracting of VSP (1) and RSP (2) through yearly tenders organized by Elia & evaluated by CREG making sure to contract sufficient reactive power to offer voltage compensation (1) and autonomous capacity to build up the grid from scratch (2)

(1) VSP (Voltage Service Provider)
"MVAR"



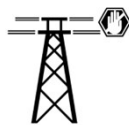
*Elia is responsible to **stabilize the voltage** at any time and also in the event of an incident and maintain it within limits **ensuring grid security.***

In scope ? All units (as of type B) able to offer reactive compensation above 1 MVAR are invited to participate to the service, on a voluntary or mandatory basis.

How ?

- By injecting or consuming MVAR
- In automated way (The automatic voltage control = local control) or
- Reacting on a set-point (The centralized voltage control).

(2) RSP (Restoration Service Provider)
"Black Start"

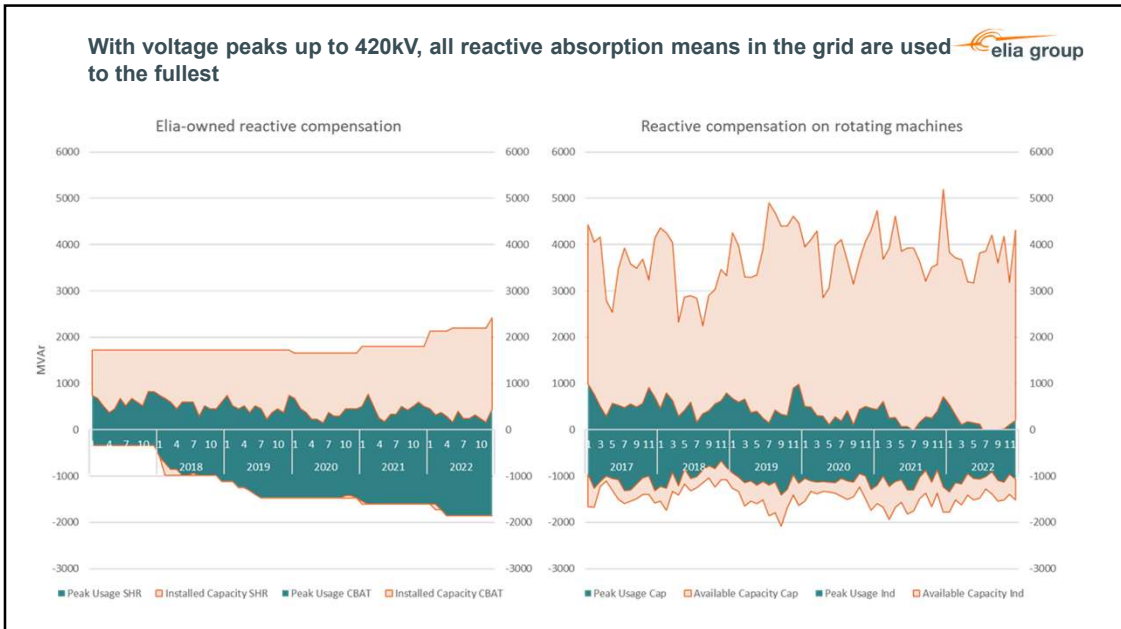


Elia needs to make sure at all time to contract sufficient Black Start capacity to be able to restart the Grid.

In scope ? Large units that are able to handle 10MW instantaneously, compensate 30MVAR , restore sufficiently stable power to sections of the transmission system, provide power to the auxiliary equipment at other BS Restoration Facilities and also accept loads. ...

How ? Each Black Start Restoration Facility needs to disposes at all times of sufficient primary energy resources to be able to deliver the Service in case of Blackout.

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Focus VSP

VSP Participation to the service

Who is obliged to participate to the service?

- ✓ The Grid User of technical units connected to the Elia grid as defined in the table beside
- ✓ Following technical requirements defined in the applicable legislation
- ✓ If at least 1 MVAR can be provided

Who can become a Voltage Service Provider?

- ✓ The Grid User of a technical unit himself
- ✓ A third party* designated by the Grid User to become VSP

How to participate?

- ✓ Participation to voltage services starts with submitting an offer in the **yearly tender** organized for the procurement of the service
- ✓ Submitted offers are subject to a **reasonability analysis of the price** by the regulator

	Grid User	Federal level (connection > 110 kV)	Regional level
Elia grid	New Type B,C,D SPGM	Mandatory	Mandatory
	New Type B,C,D PPM		Voluntary
	New Type B, C, D SPM		n.a.
	New HVDC Interconnector		
	New generators connected on a HVDC link		
	New HVDC conversion stations at isolated extremity		
	New offshore PPM with onshore connection points		Voluntary
	New offshore PPM with offshore connection points		
	Existing SPGM and PPM type C,D		Voluntary
	Existing SPGM and PPM type B		
Existing HVDC Interconnector			
Demand facilities directly connected to Elia grid	Voluntary	Voluntary	
Non-Elia grid	DSO	Voluntary	Voluntary
	CDSO	Voluntary	Voluntary

* In case of participation of a unit connected to a public distribution grid or closed distribution grid, the DSO/CDSO is the VSP

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elia group ELIA | DSOs | ESO

VSP Process Timing & Next Steps (VSP 2024)

The VSP process is made of five phases, from which the two first are to be completed by the Grid User starting with a call for candidates being mandatory for some units, followed by a call for tenders.

AprMayJunJulAugSepOctNovDec

2023

11/04 – 12/05 **Call for candidates VSP**

All installed units that could participate to the VSP for next year (2024) are contacted
Based on technical specificities (Power / Voltage / New or not) of its unit, the Grid User will be proposed to participate on a voluntary or mandatory bases.
Grid User may decide to participate to the tender himself or through a third party.
In order to be selected as a candidate VSP, the Application Form VSP 2024 and all related documents have to be completed and submitted to Elia by 12 May 2023 at the latest.

Sworn Statement

Application form

26/05 – 16/06 **Call for tenders VSP**

The call for tender for the Voltage and Reactive Power Control Service will be launched on 26th of May 2023 for selected candidates.
The offers will have to be submitted to Elia by 16 June 2023 at the latest defining

- Service Price
- Type of service (Non or Controlling Unit)
- MVAR Band (Q Min/Q Max)

Requirement

17/06 - 28/07 **Offers analysis and CREG report**

Elia to analyse offers & contact Grid Users and/or VSPs if needed
Offers to be challenged based on requested parameters (Type, Price, Band...)
Check impact on related contract(s) (e.g. PPAD)
Report & summary is communicated to the CREG

1/08 – XX/XX **CREG advice**

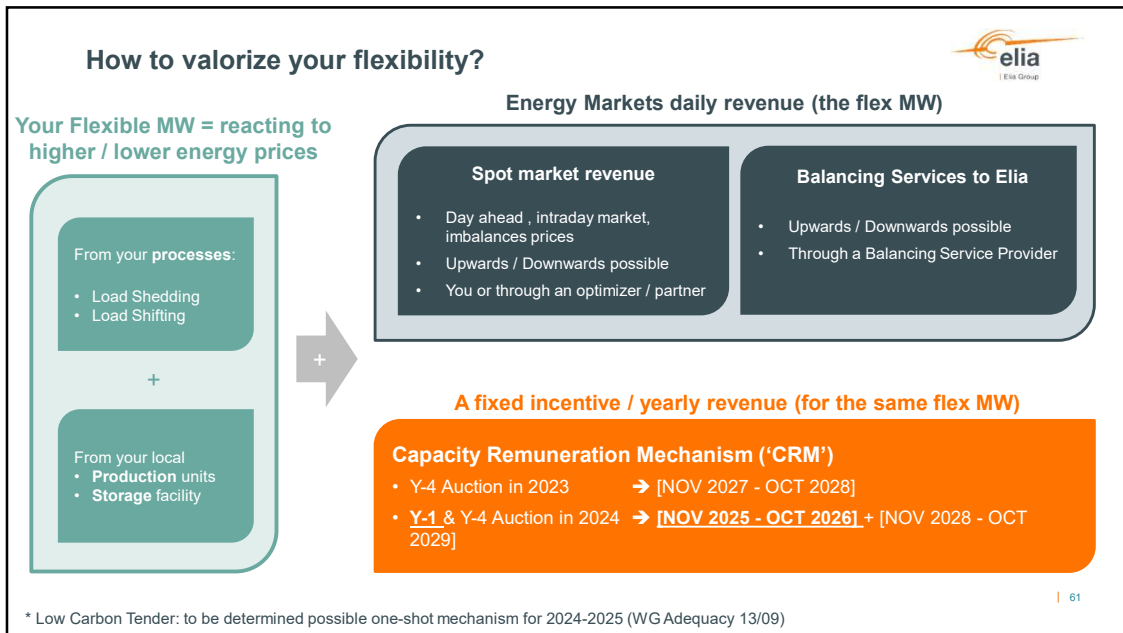
CREG analyses received report from Elia
Candidate designation and parameters setting will be done based on own CREG decision criteria

XX/XX – XX/XX **Award tenders**

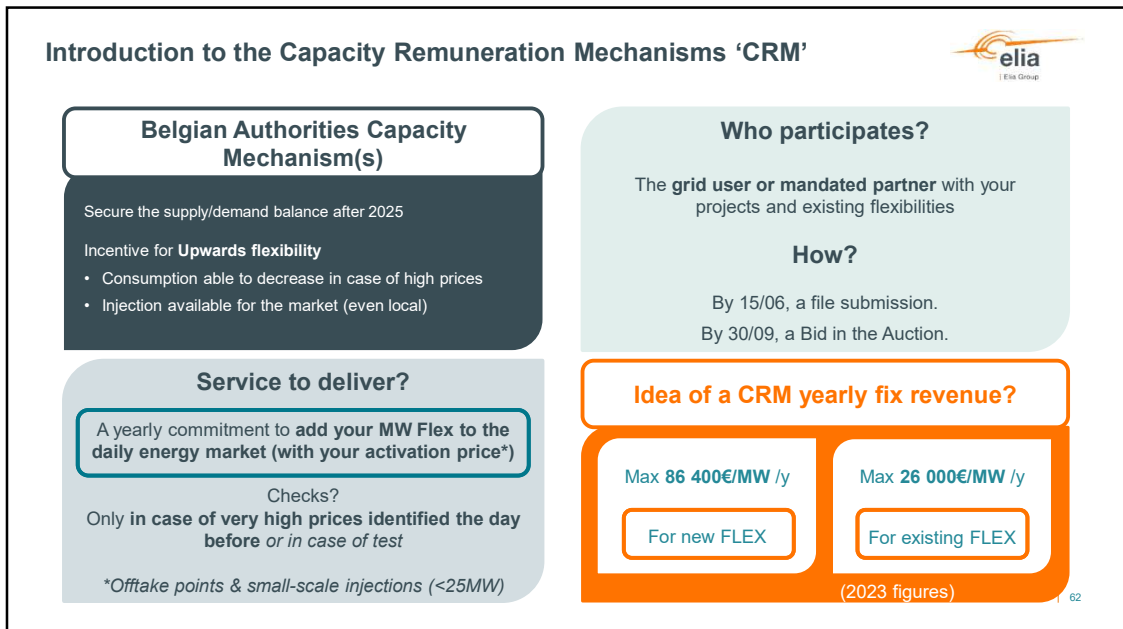
CREG will confidentially communicate the results

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