KBVE/SRBE 2.0

20/01/2022 – online webinar











Welcome

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The SRBE/KBVE makes aims at complying with the law on healthy competition.

Agenda





KBVE-SRBE 2.0 – new perimeter

Operational team

Main pillars for 2022 – 2023

Evolution of European ETS

Program for 2022 – 2023

Frederic Dunon (KBVE-SRBE President)

Pillar responsible (KBVE-SRBE ExCom members)

Jos Delbeke (Guest speaker)

Daniel Ladang (KBVE-SRBE Chair of CST)



Context

Context





"The fossil fuel economy has reached its limits. The European Green Deal is our growth strategy"

Ursula von der Leyen President of the European Commission, July 2021

#EUGreenDeal #Fitfor55





"Fit for 55": Aligning EU legislation with ambitions for 2030*







4 key principles



Energy Efficiency as a first principle



RES integration is a no regret



Direct electrification of all the appliances which can be electrified



Mobilize carbon neutral molecules for activities that cannot be directly electrified



KBVE-SRBE 2.0

Mission of KBVE-SRBE





Knowledge sharing

Inform Belgian energy enthusiasts about the latest energy trends



Technical value

Provide/create technical value through creation of technical brochures, position papers, ...



Networking

Bring together all academic and industrial partners



KVBE – SRBE 2.0

Reinventing ourselves while keeping fundamentals untouched ...

... to serve our members and the Belgian energy community contributing to an unprecedented transition

KVBE – SRBE 2.0 in a nutshell





Cooperate with other associations

The operational team





<u>Chairman</u> Frédéric Dunon



<u>Vice-Chairman</u> Hubert Lemmens



Vice-Chairman a.a. Jacques Warichet



<u>Treasurer</u> Jean Luc Guerra



Secretary relations Bruno Gouverneur



Officer in charge of academic relations Georges Van Goethem



Chairman of the Scientific and Technical Committee Daniel Ladang



Vice-chairman of the Scientific and Technical Committee Patrick Hendrick



Chairman of the Publication Committee François Vallée



Strategic Support Ronnie Belmans



Secretary General Thibaut Griboval



NewGen Committee
Joachim Goovaerts

KVBE – main pillars for 2022 – 2023





Pillar 1 – Energy Outlook & EU (BE) Legislative packages



Objectives of the pillar

- Support stakeholders in navigating the long-term scenarios and roadmaps towards climate neutrality at various (global, EU, Belgian) levels and their implications
- Analyse how policies and other instruments support the long-term strategies and objectives in the field of climate and energy (*decarbonisation, universal access and inclusivity, affordability*)



Pillar 2 – Decarbonize the loads





The "Decarbonise the loads" pillar will investigate the options to make these drastic emissions decreases a reality... sector by sector

- How mature are these options? What about the expected economics?
- What are the consequences on energy needs? How will this impact the way energy carriers interact with each others? How will it be integrated in the management of the system?







O Hydrogen-based fuels

2050

2040

Nuclear

O Other renewables

Oil products

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Electricity network investment triples to 2030 and remains elevated to 2050, meeting new demand, replacing ageing infrastructure and integrating more renewables

IEA – Net Zero by 2050 Net Zero by 2050 - A Roadmap for the Global Energy Sector



The Net Zero Emissions scenario poses big challenges for our electricity mix

2030

Hydropower

Unabated natural ga

20 000

10 000

0 2019 2020

Solar PV

Fossil fuels with CCUS

Unabated co

- A decarbonized electricity mix in turn leads to a need for grid modifications and enhancements
- Decarbonizing the energy mix poses both direct and indirect challenges in the electricity production, transmission and distribution sectors

Pillar 4 – Market design & pricing options





Scope of the pillar "Market design & pricing options"

- Evolution of economic and regulatory framework
- ► Interaction with different energy markets → electricity, gas, ETS, ...
- Implementation of innovative trends in Belgian markets

Examples:

- New service-oriented business models and market-impact
- Present market functioning and shortcomings
- Digital meter and data handling (e.g. privacy)
- Dynamic pricing

...

Guest speaker – Evolution of European ETS





Jos Delbeke

Studies PhD in Economics @ KU Leuven

Career KU Leuven (1977 - 1986)

European Commission (1986 – 2019)

• Director General of the European Commission's DG Climate Action (2010 - 2018)

European University Institute (Florence) – School of Transnational Governance (2018 - ...)

- Part-time professor
- EIB Chair on Climate Change Policy and International Carbon Markets

KU Leuven (2014 - ...)

Visiting professor for International and European Environment Policy



ETS and EU Climate Policy

KBVE-SRBE 20.1.2022

Jos Delbeke EIB Climate Chair EUI (Firenze)/KU



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Europe's International Strategy

- Today's climate change is caused by Western industrialisation
 - Tomorrow's will be related to the industrialisation of the emerging economies:
 - Accumulated emissions amount to 2/3 or even 3/4 of the 2°C limit
- Multilateral Approach:
 - Paris Agreement includes policy action by ALL countries
- Europe as a laboratory for 'low-carbon' technologies and policies:
 - Climate responsibility
 - Economic opportunity



COP26: A world of 2°C warming (instead of 3°C)

• EU (2019)

- Climate Neutral by 2050
- At least 55% reduction by 2030 (based on 1990)
- China (2020)
 - Carbon Neutral by 2060
 - 2021 nation-wide roll-out of CN ETS
- US (2021)
 - Net-zero emissions by 2050
 - At least 52% reduction by 2030 (based on 2005)
- At COP26: more than 80 (in particular G20) countries committed such as Japan, Korea, South Africa, ... but also S-Arabia, Russia, Turkey, India



Need to move away from pledges to policies

- COP 27: review policies for the coming decade
- COP 26: emerging plurilateral approach?
 - Methane
 - Coal phase out
 - Deforestation
 - Private finance: \$130trillion...
- Climate Finance: \$100bn



EU Green Deal: 55% reduction by 2030

Figure 1: Stylised representation of future net GHG emission pathways compared to historic reduction rate since 1990



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Green Deal: Investment Challenge

- €350bn additional annual investment in 2021-2030 (compared to 2011-2020)
- Energy
 - Renewable: solar and wind
 - Storage
 - Grid
 - Digital, transport, construction (buildings)

Transport

- Electrification of car fleet
- Construction
 - Energy efficiency
 - Electrification of heating heat pumps
- Industry:
 - Low-carbon innovation based on hydrogen, CCUS, bio-chemicals, ...



De-coupling economic growth from emissions



EUI

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EU Climate Policy: combining instruments

- Market-based approach: flexible and cost-effective
 - ETS: putting a price on carbon (since 2005)
 - Disclosure of climate/sustainable information by private companies and banks
- Mandatory standards/benchmarks: administratively more complex
 - Renewables
 - Energy efficiency
 - Fluorinated Gases
 - Car emissions
 - ...
- Governance
 - Member State targets for non-ETS emissions: MRV (monitoring, reporting, verification)
 - National Energy and Climate Plans (including on Social Climate Fund)



EU target: 55% domestic emission reduction by 2030 (based on 1990)



EU ETS - essentials

- A price on carbon is key: W. Nordhaus (Nobel prize Winner Economics 2018)
 - Either through taxes or through carbon market (P or Q approach)
 - EU tried a tax approach, and then switched to carbon market
- ETS (Emissions Trading System) in place since 2005
 - Covers more than 10.000 installations, i.e. more than 40% of EU's CO2 emissions
 - In power generation, manufacturing, and intra-EU aviation
 - Treats companies inside the EU in an identical manner through a 'waterbed' effect
- Reduced emissions by 43% by 2021 compared to 2005
 - without reduced economic activity (decoupling)
- Importance of Revenues: almost 60% of allowances are auctioned
 - Today's revenues: roughly €50bn
 - To finance innovation and social concerns



2005-2007 ("pilot-phase")

Cap-setting: each phase has had its own cap

2008-2012 (1st Kyoto commitment period)

2013-2020 (2nd Kyoto commitment period)

2021-2030 (Paris NDC1)



Gradual nature of emission reduction: Linear Reduction Factor (LRF) of 2.2% (being reviewed up to 4.2%) as of 2021



Structure of allocation in 2021-30 (Phase 4) (15.5 billion allowances cumulative, worth €1 trillion at current prices of EUR 70)



* Allowances dedicated for auctioning that may be converted



EU ETS: prices around €80 per tonne CO₂

CO2 emission allowance



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Low-carbon funds: significant financial support

Innovation Fund

 At least 450 million allowances to support carbon capture and storage (CCS) and renewables as well as breakthrough technologies in industry in all Member States

Modernisation Fund

- At least 310 million allowances to support modernisation of energy systems and just transition in 10 lower income EU Member States
- No support to energy generation from solid fossil fuels

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EU ETS proposal 1: Carbon Border Adjustment Mechanism (CBAM)

To prevent Carbon Leakage

- Instead of free allocation?
- Carbon Price unlikely to go down to past levels, but rather going up (strenghtening of cap)

Gradual introduction

- Operational by 2026 to allow for international dialogue: G7/G20/WTO/OECD
- Start with 5 sectors: cement, steel, aluminum, electricity, fertilizer

• Hot issues:

- Revenues
- Technical issues: MRV and 'comparability of effort'
- Free allocation
- Carbon Clubs?



EU ETS proposal 2: extending the carbon price

Scope extension:

- Maritime, international aviation (CORSIA)
- ETS2 ('adjacent') system for heating and transport fuels:
 - Broadening the carbon price signal to more sectors of the economy
 - Convergence of 2 ETS's in the future
 - Politically sensitive: 'gilets jaunes'
- Generating revenues for 'Social Climate Fund' i.a. to address fuel poverty
 - Gradual phasing out of free allocation
 - ETS2 could generate €72bn to be topped up by Member States to €144bn



Emergence of Voluntary Carbon Markets

• Demand for offsets:

- Net-zero announcements for 2050
 - By companies, local authorities, foundations ... and ICAO
 - First reduce emissions, offsetting remaining emissions
- As an alternative to compliance (ETS) markets, e.g. Mexico, Columbia

Supply of offsets:

- Private sector sets up carbon reducing projects, and these generate carbon credits
- Many questions: Drive to high quality or drive to the bottom? Expensive vs cheap credits
- Displacing emissions or removing emissions (forestry, CCS, ...)

Scaling up of Voluntary Carbon Markets to \$30/50/100bn by 2030?

• No public regulation, but how to create trust and confidence?



Conclusions on EU Green Deal

- 1. A market-based approach allows for a cost-efficient strategy
 - Carbon Pricing through ETS
 - Mandatory disclosure of sustainable and climate risks by companies
 - Financial sector and Industrial corporations

2. The EU Green Deal is a massive investment program

- Support by EU budget, NextGenEU, EU ETS revenues
- Innovation and Modernisation Fund: deployment of low-carbon investment
- Social and Just Transition Funds: dealing with energy poverty

3. Energy is key: less use of fossil fuels

- Renewables, storage, dealing with increasing flexibility (digital)
- Energy efficiency: accelerate renovation rate of existing buildings



Thanks and more to read



- Available in paperback by Routledge:
- https://www.routledge.com/Towards-a-Climate-Neutral-Europe-Curbing-the-Trend/Delbeke-Vis/p/book/9789276082613
- Free downloadable through open access:
- <u>https://www.taylorfrancis.com/books/towards-</u> <u>climate-neutral-europe-jos-delbeke-peter-</u> <u>vis/e/10.4324/9789276082569?context=ubx&refld</u> =5f0a85c0-4f7f-4e3e-9c32-8c9cb53c4deb





Q&A



Program for 2022 – 2023

Program for 2022 – 2023



In 2022 and 2023, SRBE-KBVE aspires to organize following events, based on topics related to the 4 pillars presented.

Electricity production, transport and distribution	Decarbonize the loads
 → Study day "HV & MV substations" → Study day "Digital substations – Automation & Control" → Study day "HVDC systems" + Site visit of HVDC Substation → Webinar "Small Modular Reactors (SMR)" → Webinar "Belgian Generation Mix and RES gen strategy" + site visit 	 → Study day "Flexible loads & Consumer Centricity" → Study day "Industry Chemicals & Ferro" → Site visit related to "Industrial and residential load" → Half day event "E-Mobility" → Webinar "CCS-CCU projects in Belgium"
 Market design & pricing options → Study day "New concepts for electricity pricing" → Workshop on flexibility markets → "New business models and enabling market design" + site visit 	 Energy Outlook & Legislative packages → Webinar "(Long term) Energy outlook & EU-policy" → Webinar "EU package Fit for 55" → Webinar "Belgian energy transition and policy"

→ SRBE-KBVE Academic conference (**NEW**)

Upcoming – Study Day HV & MV Substations





Upcoming – Study Day Electricity Pricing



Not a member yet?



- Invitations to KBVE-SRBE exclusive events
- Discount on Study Days and publications
- Free access to "E-revue" journal













Thank you!

We wish you a wonderful 2022 !!







