

Comissão Especial de Transição  
Energética e Produção de  
Hidrogênio Verde



# Combustíveis Marítimos: Metanol Renovável

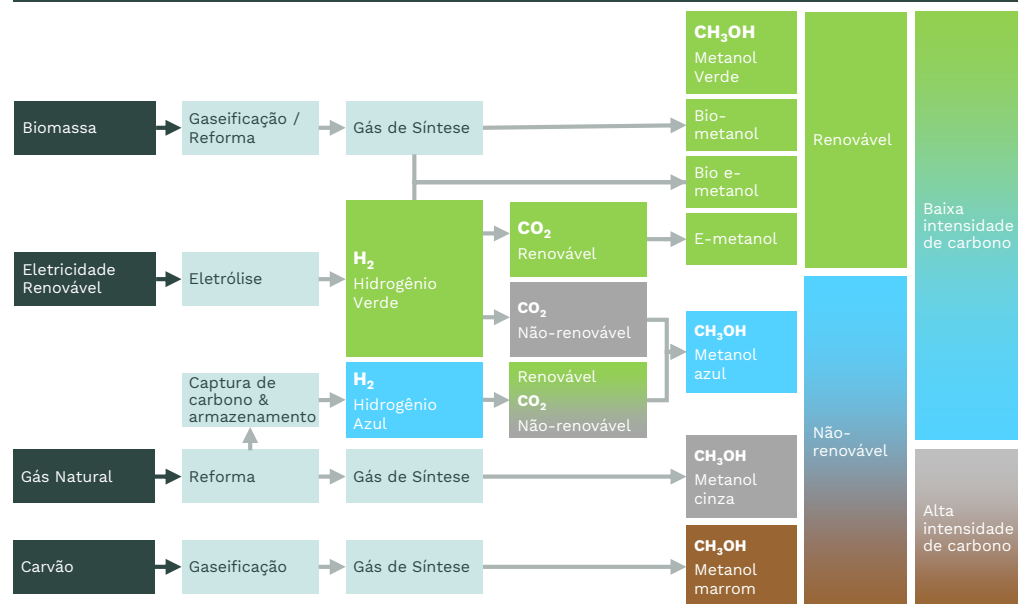
Março de 2024



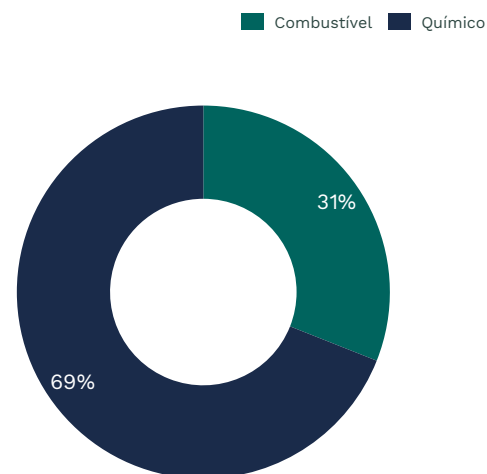
# Rotas, aplicações e demanda para o metanol renovável

A projeção de demanda pelo metanol renovável (e-metanol e bio-metanol) nos próximos anos oferece uma enorme oportunidade para o país.

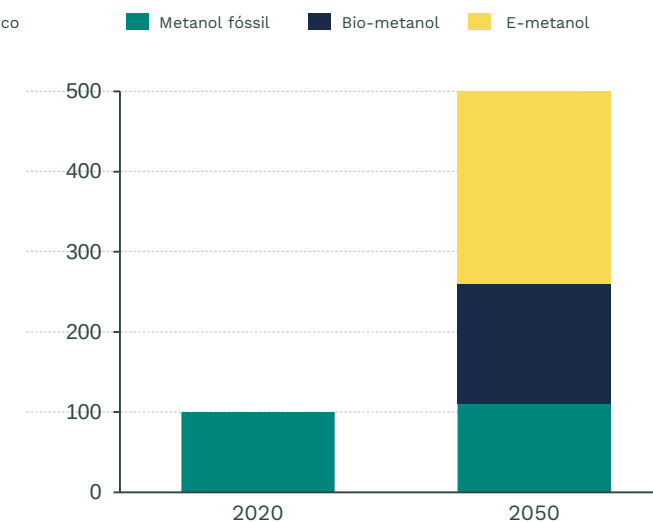
## Rotas para produção de metanol



## Aplicações atuais do metanol



## Projeção de demanda para metanol



- O metanol renovável é equivalente ao metanol marrom ou cinza em composição química e pode substituí-los com facilidade em qualquer aplicação.
- O metanol é um produto muito versátil e é usado principalmente como matéria-prima para a fabricação de produtos (por exemplo, tintas, carpetes, plásticos) e como combustível de transporte, devido a uma combustão eficiente e facilidade de distribuição
- Projeta-se que a produção global de metanol aumentará de 100 Mt para 500 Mt em 2050
  - Demanda projetada de 400 Mt para e-metanol
  - Necessidade projetada de 275 Gw<sub>med</sub> em energia renovável adicional

# Kassø: Visualização do Processo Produtivo da Primeira Planta de E-Metanol em Escala Industrial



E-Methanol Plant,  
Kassø, Åbenrå, Denmark

Animated by Kirt X Thomsen





# Construção de Kassø

Jun  
2023



Sep  
2023



Dec  
2023



Sep  
2024



EUROPEAN  
ENERGY



# O Brasil possui vantagens competitivas para materializar investimentos com potencial multiplicador na cadeia

- **Vantagens Competitivas:**

- Disponibilidade de energia renovável
- Disponibilidade de biomassa
- Disponibilidade de recursos hídricos
- Boa Infraestrutura portuária

- **Avanços na Legislação: Incentivos & Segurança Jurídica**

- REHIDRO & PHBC
- Combustível do Futuro
- Mercado de Carbono
- Dentre outros...

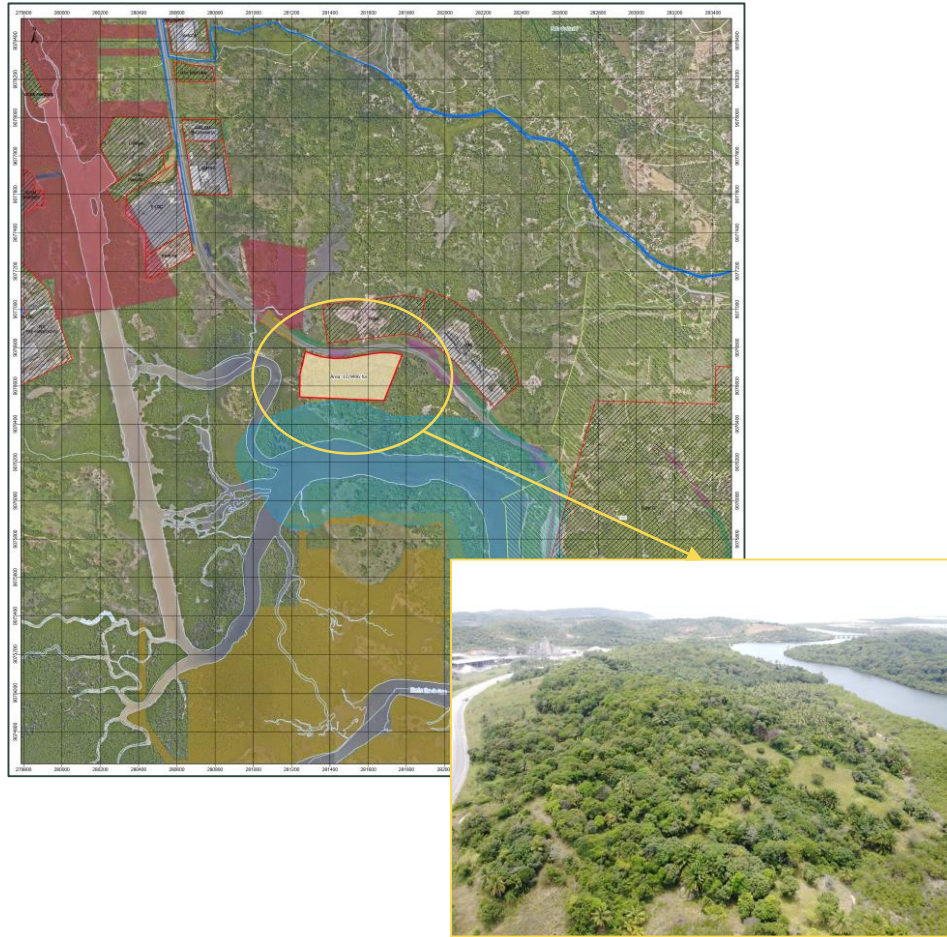
- **Adensamento das Cadeias Produtivas**

- Sinergia com o agronegócio, especificamente o setor sucroenergético
  - Captura de CO<sub>2</sub> – fonte de receita acessória e mecanismo de mitigação contra barreiras de exportação
  - Produção de biogás e biometano
  - Investimentos acessórios em energia renovável, como a solar e eólica





# Projeto Suape



## Development of E-Methanol in Suape (PE)

- **Produção Anual de Metanol:** 100,000 toneladas
- **Produção Anual de Hidrogênio Verde:** 20,000 toneladas
- **Demanda Energética:** ~1,200 GWh por ano
- **CO2 Biogênico:** 150,000 toneladas por ano
- **Investimento na Planta de Metanol:** ~ BRL 2 bilhões
- **Potencial Investimento em Energia Renovável:** ~ BRL 2 bilhões

## Cronograma de Implantação

Desenvolvimento

2024

Estruturação

Construção

2025

2026

2028

Operação

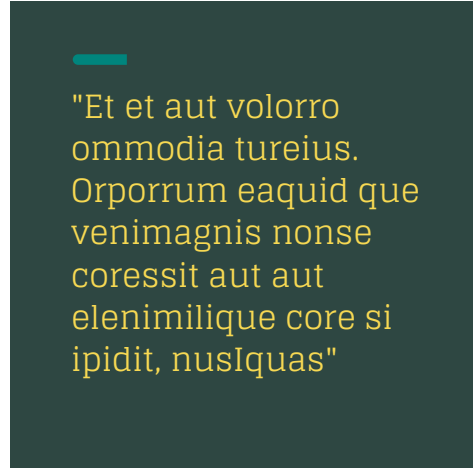
## Proprietary green methanol design



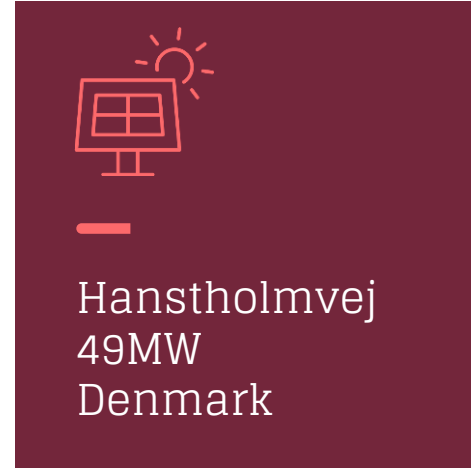
|            |                |
|------------|----------------|
| Technology | E-Methanol     |
| E-Methanol | 100,000 ton/yr |
| Power      | 1,200 GWh/yr   |
| Biogen CO2 | 150,000 ton/yr |
| Water      | 300,000 m3/yr  |

# Copy a fifth element to your Power Point

Quote box



Case box



Information box



Information box + icon box

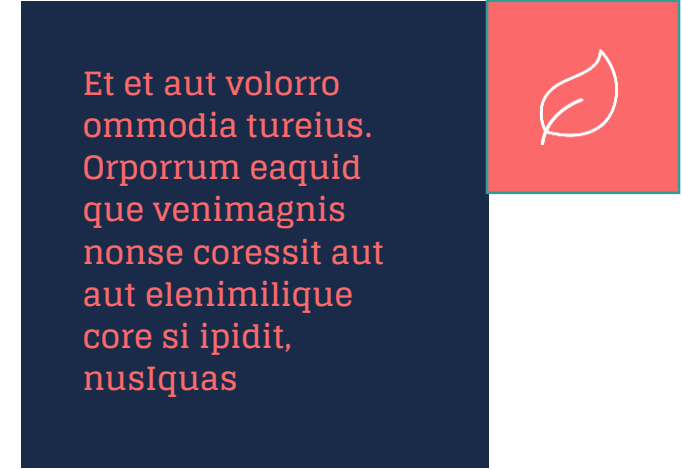


Table of Content

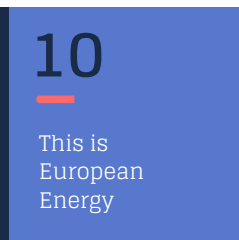
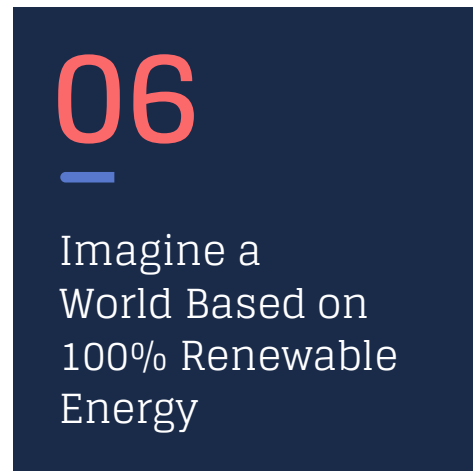
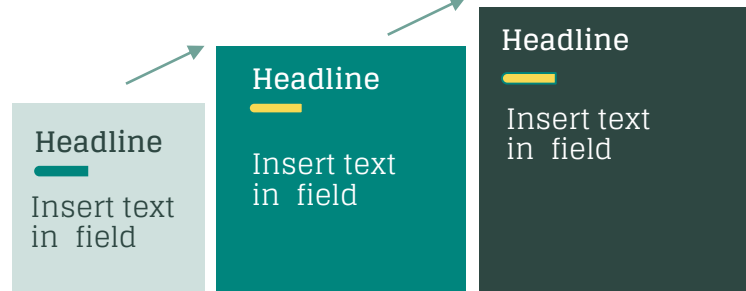


Image description box



Development → growth boxes

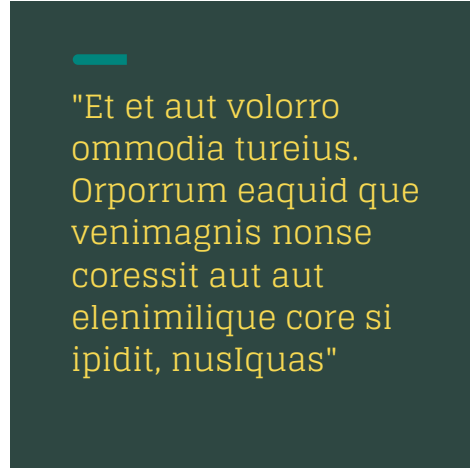


Name box

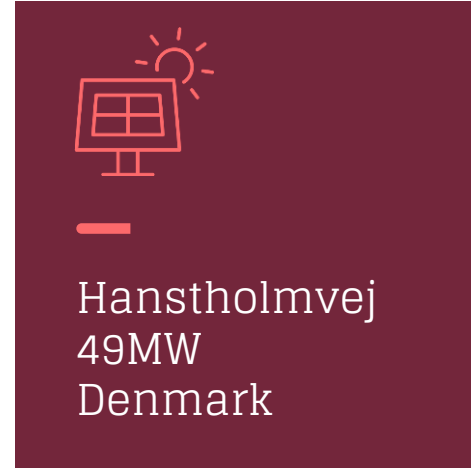


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Information box + icon box

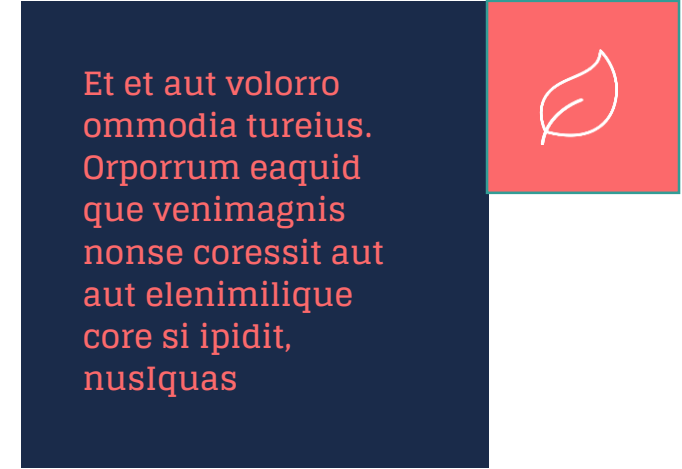


Table of Content

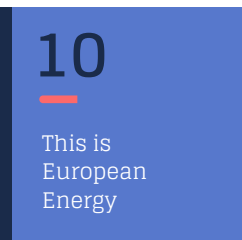
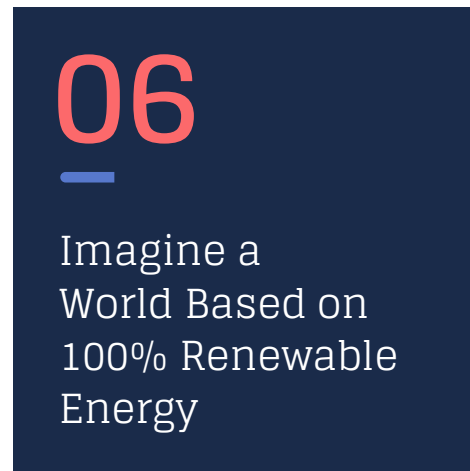
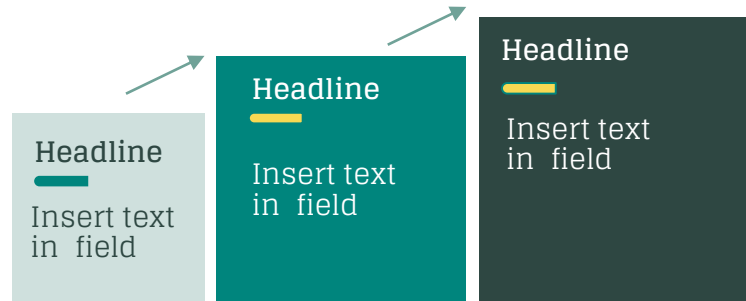


Image description box



Development → growth boxes



Name box





## People / employees



Man



Woman



Family



Child



Employee  
s



Employee



People  
development



Next generation  
program



Work environment



Man half figure



Diversity

## Value icons



In it together



Excitement



Inclusion



Agile



Trust and  
courage



Ambition

## Buildings



Direct heating



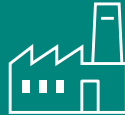
Traditional  
electricity



Oil refinery



Office building



Indirect el  
Plant



Power plant



Nuclear plant



Water dam



Construction



Government

# Energy



Development  
Onshore



Development  
offshore



Solar panel



Electrolyse



Battery



Hydrogen  
storage



Electricity



Power plant



Nuclear plant



Water dam



Transmission  
tower



Oil refinery



Oil offshore



Oil Onshore



Battery



Atom



Coal mining



Fire



Radioactive

# Transportation / Direct and indirect el



Direct el  
Airplane



Indirect  
el  
Shipping



Indirect  
el  
Truck



Oil  
transport



Indirect el  
Plant



Green  
gasoline



Power to  
X



Direct el



Direct EL



Direct EL



Direct EL

# Office



Corporate  
action



Educatio  
n



Anti  
corruptio  
n



Procurement



Green  
financing



Plastic  
bottle



Chart



Chart



Chart



Pie chart



Light bulb



Light bulb



Point



Development



Info



Handshake



Chart



Chart



Money



Money



QHSE



Safety



Diversity



Globe



Diversity



Money



Money



Founded



Sign



Contact



Chat



Thumbs up



Thumbs down



# Environment



Environment  
al



Biodiversi  
ty



Climate action  
CO<sub>2</sub>



Climate  
change



Stone



Corn



Grain



Environme  
nt



Three



Flower



Sheep



Field



Insect  
house



Bee hive

## People / employees



Man



Woman



Family



Child



Employee  
s



Employee



People  
development



Next generation  
program



Work environment



Man half figure



Diversity

## Value icons



In it together



Excitement



Inclusion



Agile



Trust and  
courage



Ambition

## Building



Direct heating



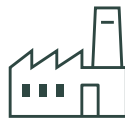
Traditional  
electricity



Oil refinery



Office building



Indirect el  
Plant



Power plant



Nuclear plant



Water dam



Construction



Government

# Energy



Development  
Onshore



Development  
offshore



Solar panel



Electrolyse



Battery



Hydrogen  
storage



Electricity



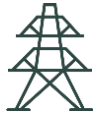
Power plant



Nuclear plant



Water dam



Transmission  
tower



Oil refinery



Oil offshore



Oil Onshore



Battery



Atom



Coal mining



Fire



Radioactive

# Transportation / Direct and indirect el



Direct el  
Airplane



Indirect  
el  
Shipping



Indirect  
el Truck



Oil  
transport



Indirect el  
Plant



Green  
gasoline



Power to  
X



Direct el



Direct EL



Direct EL



Direct EL



# Office



Corporate  
action



Educatio  
n



Anti  
corruptio  
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Procurement



Green  
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Plastic  
bottle



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Chart



Chart



Pie chart



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Development



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Handshake



Chart



Chart



Money



Money



QHSE



Safety



Diversity



Globe



Diversity



Money



Money



Founded



Sign



Contact



Chat



Thumbs up



Thumbs down

# Environment



Environment  
al



Biodiversi  
ty



Climate action  
CO<sub>2</sub>



Climate  
change



Stone



Corn



Environme  
nt



Three



Flower



Sheep



Field



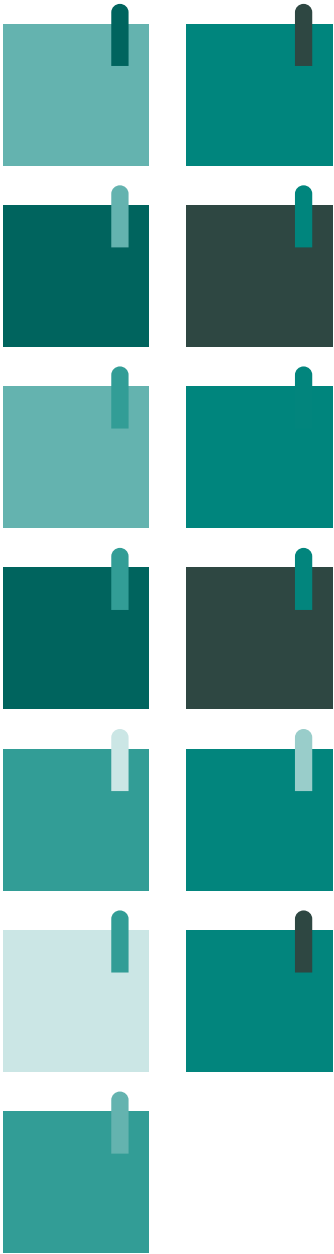
Insect  
house



Bee hive

# Colours

|                                                                              |                                                                           |                                                                           |                                                                           |                                                                             |
|------------------------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| <b>Light green</b><br>Pantone: 7717 U<br>CMYK: 80-25-55-10<br>RGB: 0-133-125 |                                                                           | <b>Dark green</b><br>Pantone: 560 U<br>CMYK: 80-45-60-55<br>RGB: 46-71-66 |                                                                           | <b>Light yellow</b><br>Pantone: 602 U<br>CMYK: 3-7-70-0<br>RGB: 247-217-83  |
| <b>Light red</b><br>Pantone: 1787 U<br>CMYK: 0-68-38-0<br>RGB: 252-105-107   | <b>Dark red</b><br>Pantone: 2049 U<br>CMYK: 40-90-50-45<br>RGB: 115-38-59 | <b>Light blue</b><br>Pantone: 285 U<br>CMYK: 75-50-0-0<br>RGB: 87-120-204 | <b>Dark blue</b><br>Pantone: 289 U<br>CMYK: 100-80-40-50<br>RGB: 26-43-74 | <b>Dark yellow</b><br>Pantone: 105 U<br>CMYK: 55-45-90-45<br>RGB: 107-97-33 |



|                   |                   |                   |                   |
|-------------------|-------------------|-------------------|-------------------|
| 100 %             | 100 %             | 100 %             | 100 %             |
| 20 % transparency | 20 % transparency | 20 % transparency | 20 % transparency |
| 40 % transparency | 40 % transparency | 40 % transparency | 40 % transparency |
| 60 % transparency | 60 % transparency | 60 % transparency | 60 % transparency |
| 80 % transparency | 80 % transparency | 80 % transparency | 80 % transparency |
| 100 %             | 100 %             | 100 %             | 100 %             |
| 20 % transparency | 20 % transparency | 20 % transparency | 20 % transparency |
| 40 % transparency | 40 % transparency | 40 % transparency | 40 % transparency |
| 60 % transparency | 60 % transparency | 60 % transparency | 60 % transparency |
| 80 % transparency | 80 % transparency | 80 % transparency | 80 % transparency |

# Tips & tricks delete this slide

## Text styles

Use the **TAB**-key to jump through levels.

Click **ENTER**, then **TAB** to switch from one level to the next level

To go back in levels use **SHIFT-TAB**

Alternatively, **Increase** and **Decrease** list level can be used

- Level 1
  - Level 2
    - Level 3
- Level 4, Header**
- Level 5, Body
  - Level 6
  - Level 7
- Level 8, Small Header**
- Level 9, Small Body



### HINT: Use bullet button

Delete bullet for regular text.

Click on the bullet button to reaply the correct bullet again



### Reset slide

Click the **Reset** menu to reset position, size and formatting of the slide placeholders to their default settings



## Slides & Layouts

Click on the menu **New Slide** in the **Home** tab to insert a new slide



### Change layout

Click on the arrow next to **Layout** to view a dropdown menu of possible slide layouts



## Pictures

On slides with picture placeholder, click on the icon and choose **Insert**



### Crop picture

1. Click **Crop** to change size or focus of the picture

2. If you want to scale the picture, hold **SHIFT**-key down while dragging the corners of the picture



**HINT:** If you delete the picture and insert a new one, the picture may lie in front of the text or graphic. If this happens, select the picture, right-click and choose **Send to Back**

## Header & Footer

Do this at the very end to apply the changes on all slides

Click on **Header and Footer** in the **Insert** tab (write the desired text, click date or page number from or to)

Click **Apply to All** or **Apply** if only used on one slide



## Guides

Click the **View** tab and set tick mark next to **Guides**

**HINT:** **Alt + F9** for quick view of guides

**Mac:** **⌘ + option + ctrl + G**

## Copy/Paste content

When copying old content to your new presentation, 2 options are available:

**1. Best practice:** Create a slide in your new presentation and copy one piece of content at a time (e.g. copy all text from one textbox)

**2. Or copy** an entire slide into your new presentation and then choose a fitting layout. Remember to delete the old, wrong layouts (go to View > Slidemaster and delete them)



# How to copy slide from a former presentation

## Step 1. Former Presentation

Select the desired items on the slide and press “copy”

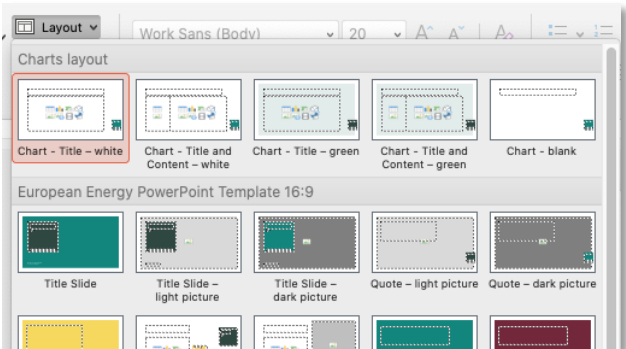


High return and successful entry into new markets  
Latest successful investments made in new markets

| Project                          | Country | Technology | MW | Entry/exit        | Description                                                                                                                                    |
|----------------------------------|---------|------------|----|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Boa Hora I-II                    | Brazil  | Solar      | 84 | 2015/2017         | Project sold prior to construction (sale of building rights). Actual IRR for EE was +200%. Enlargement for Boa Hora IV-IX possible with 180 MW |
| Coremas I-II                     | Brazil  | Solar      | 93 | 2015/Not realized | Project currently in the process of being build. Enlargement for Coremas IV-IX possible with 270 MW                                            |
| Ouro Branco I & II Quilom Ventos | Brazil  | Wind       | 82 | 2017/Not realized | Revenue secured by PPA. Current negotiations implies an IRR of 24%                                                                             |
| Jeppo                            | Finland | Wind       | 17 | 2014/2017         | Sold with investor IRR of 8%                                                                                                                   |
| Oppedo                           | Italy   | Wind       | 20 | 2016/2018         | Sold with investor IRR of 9%                                                                                                                   |
| Bosco                            | Italy   | Wind       | 39 | 2017/Not realized | Project in the process of being build                                                                                                          |
| UK Solar                         | UK      | Solar      | 56 | 2014/2017         | 8 projects in UK sold with good profits. If exchange rate loss is disregarded the GBP gain is above GBPm 10                                    |

## Step 2. New Presentation

Select the layout you want to use for the slide



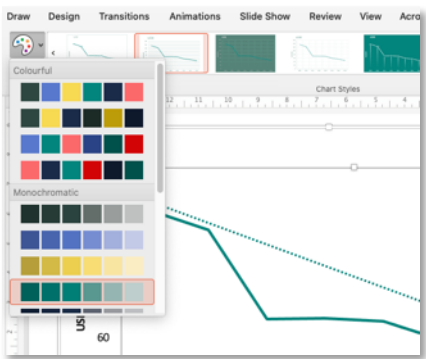
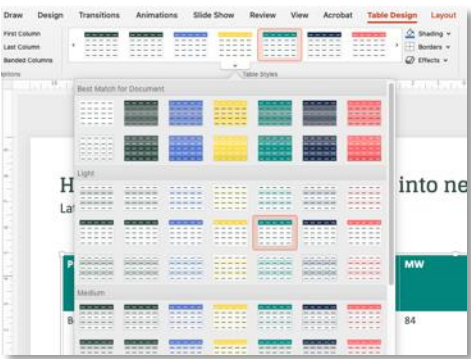
## Step 3.

Paste you copied items and select “Use Destination Theme”



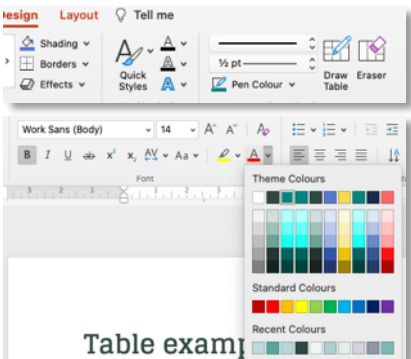
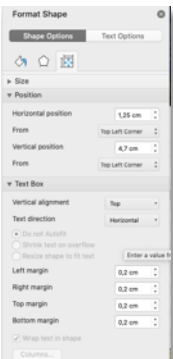
## Step 4.

Select the proper design and/or colour for tables and charts

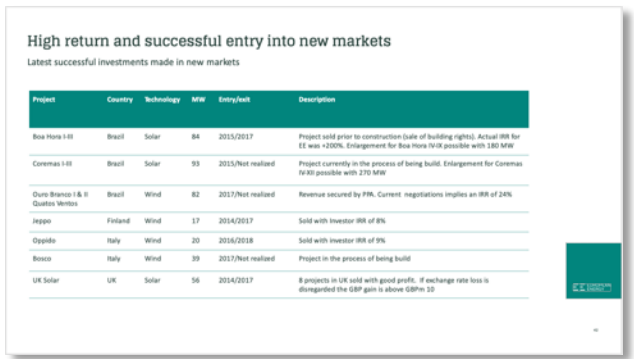


## Step 5.

Ajust til size and details if nesserary



## The Result



High return and successful entry into new markets  
Latest successful investments made in new markets

| Project                          | Country | Technology | MW | Entry/exit        | Description                                                                                                                                    |
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