Eurometaux

METALS: AT THE HEART OF EUROPE

# Corporate Sourcing of Intermittent Renewables in Europe: How to Ensure the Growth of RES PPAs

**Cillian O’Donoghue, Climate & Energy Director**

**Eurometaux - European Non-Ferrous Metals Association**

2nd June 2021

# Three topics in the next 10-15 minutes

1

**Why and how we are signing long term PPAs with intermittent RES (Wind and solar) in the Nordic Market (Norway & Sweden)**

2

**Why not elsewhere?**

Conditions needed to unlock RES PPAs beyond the Nordic market

3

**Recommendations**

Practical actions to encourage more RES PPAs

# 1. Decarbonisation of Power in Europe

# EU 2050 Vision for the Power Market: Wind and solar deployment to decarbonise

EU STRATEGY for long-term EMISSIONS REDUCTION

‘By 2050, the share of electricity in final energy demand will at least double, bringing it to 53%’

**80%** Of this electricity will be **wind** and **solar**

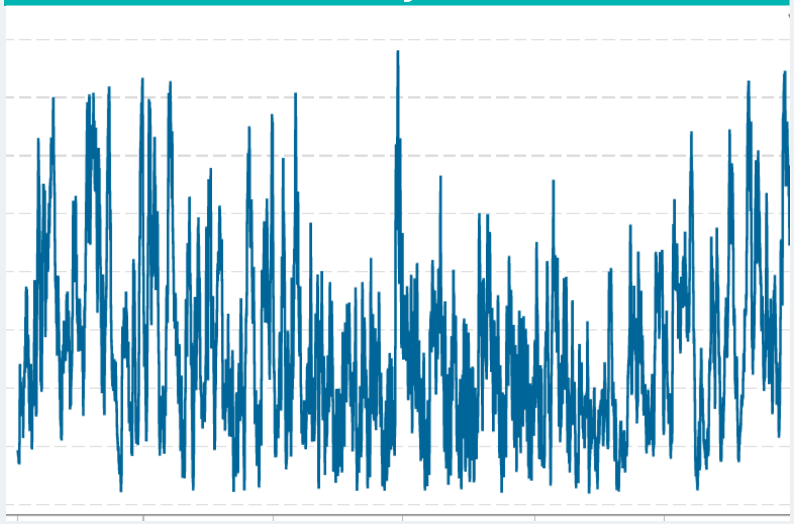
# 2. Intermittent RES PPAs in the Nordic Market

# Non-Ferrous Metals Production - Baseload Consumers

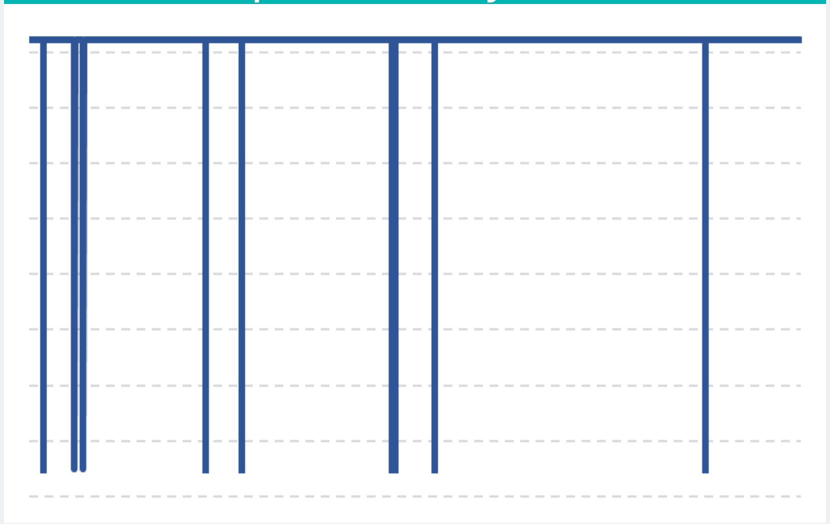
## Renewable variable generation and aluminum production may not be seen as natural allies at first sight…

**Vs.**

Wind hourly production profile in a year



Al Smelter hourly consumption profile in a year



**However, these obstables can be overcome**

# Renewable Energy & Long term PPAs - Non-ferrous metals leadership

FT
FINANCIAL TIMES

Renewable Energy + Add to myFT

Norsk Hydro in 'biggest' deal to secure wind farm energy

New renewables PPAs in our industry:

HYDRO

**~ 9 TWh/year**
Hydro and Wind Power contracts in Norway beyond 2021

**~4.5 TWh/year**
Wind Power contracts

Alcoa

**~ 2.6 TWh/yr**
3 Wind PPAs for 15 yrs

Elkem

**~ 1.8 TWh/yr**

## Long term renewable PPAs – a 'win-win' for both parties

- **For developers:** Enabling new large scale wind farms through a stable revenue stream
- **For Industry:** Long term horizon for investment– wants to reduce risk of volatility by achieving predictable power costs

# The Prerequisites: The Commercial and Regulatory Framework

## The commercial framework

### 1. Need to be costs competitive

Not just the energy component but all components (Regulatory components, etc)

### 2. Access to electricity competence for balancing

In the companies or the electricity market.
It varies between regions

### 3. Access to financing/ guarantees:

Often the credit support provided by investment grade entities for the entire contract.

## The regulatory framework

### 1. Indirect costs compensation

Adequate compensation for the indirect costs of the EU ETS

### 2. EEAG 2014-2020

Understand if the exemption to the RES surcharges will continue post 2022 and to what extent

# A wind PPA does not differ from other PPAs

## The expected market price is the basis for agreeing a PPA

A PPA from coal, gas, nuclear, hydro or wind generation are all based on the market prices inclusive the markets emission costs- not the sellers cost.

**If parties agree, a PPA could be win-win for investors and consumers**
**But the CO2 compensation regulation must not distort the market ...**

### Merchant wind investors

- A PPA could offer predictable income & reduce the financing cost
- Purchaser must be attractive with long term perspective
  - ✓ Acceptable guarantees from the consumer is essential, to obtain better financing
- Negotiated price based on alternatives market price & all contractual elements

**Wind developer will maximize NPV**

**Expected market price**
Alternative 1

**PPA price**
**LCOE wind, competitive PPA close to market price**
Alternative 2

**LCOE wind, too high, no PPA**
Alternative 2b

### Consumers

Interested in achieving a long term predictable price

- Cost competitive price is essential
- All alternative sourcing (PPA from wind and coal and other generation plants) have the same expected market price reference,
- Additional specific risk elements related to wind PPAs must also be considered*)
  - Project risk, guarantees the offtake for the entire contractual period etc



*e.g Cost of changing the production profile from variable wind production to consumers profile; project risk and counter party risks guarantees costs etc.

# Why are RES PPAs happening in the Nordics?

**5 Reasons**

**Credit support schemes**

Reduces the costs of the bank guarantee

**Stable Regulatory Framework**

Knowledge that indirect costs of the EU ETS will be compensated

**Competitive electricity costs**

Especially when accounting for the regulatory component of the final electricity costs

**Competitive firming costs**

To adapt from wind profile to a baseload profile of aluminium smelters

i) **liquid electricity markets and**
ii) **prominent role played by hydropower**

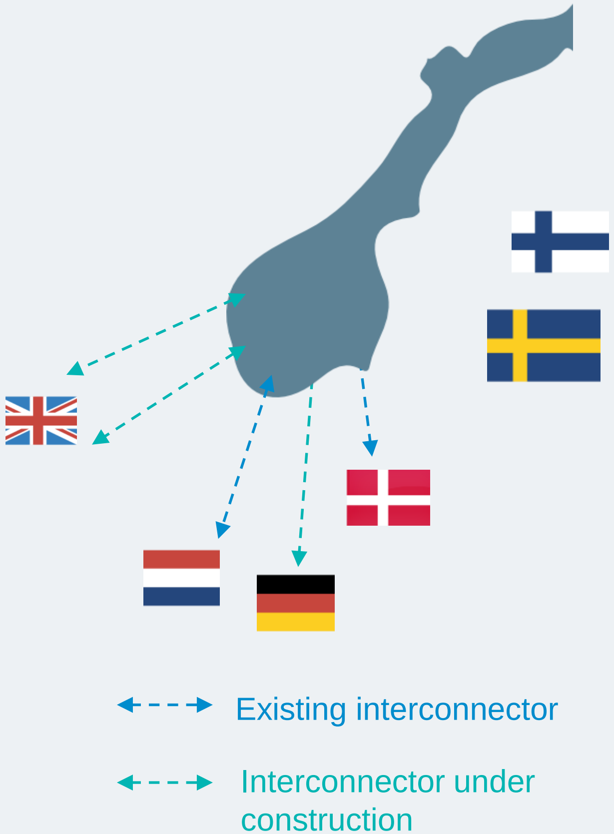
**Competitive price of the Energy Component**

Norway and Sweden are a cost effective wind and hydro location

# Indirect Carbon Costs with renewable PPAs??

## Yes. Even with renewable PPAs, companies still face full indirect carbon costs

### Example – Green Aluminium Production in Norway




**Norwegian NFM** production is carbon free currently **based on hydropower**… and in the future wind as well

**BUT**

Fossil fuel production in Nordics and interconnectors set **the marginal cost** for Nordic electricity generation

The industry reality is that **100% of electricity costs** are impacted by indirect $CO_2$ costs

Recent long term PPAs **do not reduce indirect carbon cost exposure**

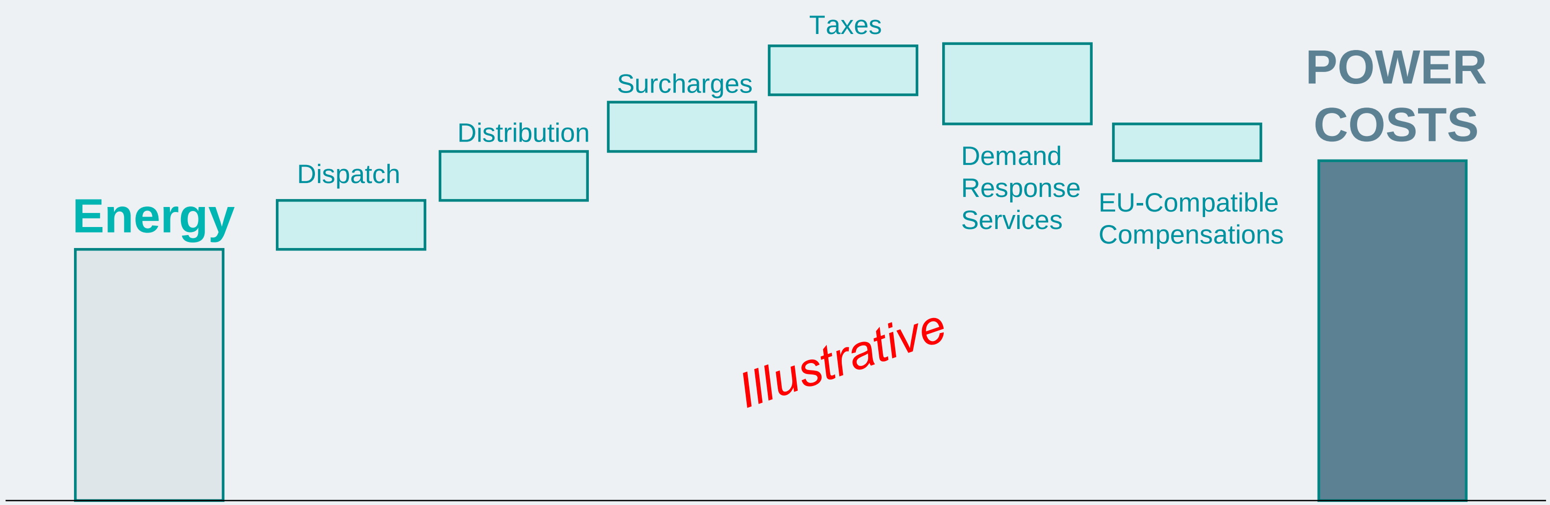
# 3. Challenges faced in other parts of Europe

# Why are renewable PPAs not happening in Other Regions?

## Power costs are not only energy

Lack of competitive and minimally predictable framework for the rest of cost components that define the net power price for energy-intensive industries

| Non exempted renewable support or carbon surcharge schemes | Costly transmission/distribution tariffs | Non compensated ETS indirect costs |
| --- | --- | --- |




Uncertain regulatory framework can erode already limited capability to enter into a long term Power Purchase Agreement

# Technology development and strong decrease of RES investment costs

## RES technology costs

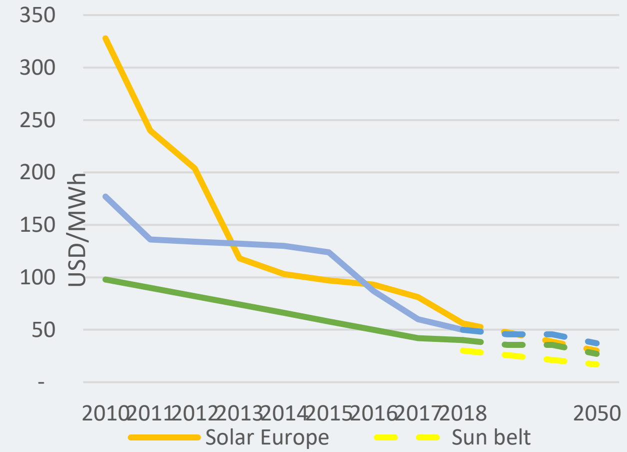
- RES investments has until recently, not been market competitive
- Strong decrease of RES technology costs
- Improving business case for renewables investment

## Huge variation in design of support schemes

- From full support with no income risk
- To more market based and uncertain support

## Commercial PPAs in schemes with uncertain (low) support

- Investments exposed to market prices increase investors risk
- High carbon and market price risks lead to higher cost of capital and constrains access to finance
- Uncertain income increase the projects financing costs



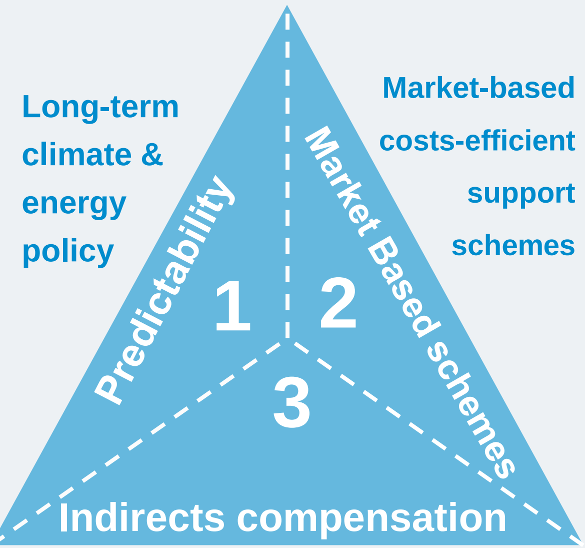

Source: McKinsey

# 4. Conclusion

How can we unlock more RES PPAs

# Recommendations: How to incentivize more RES PPAs in the future?

**3**
***things are needed***




**Indirects costs of the EU ETS embedded in PPAs**

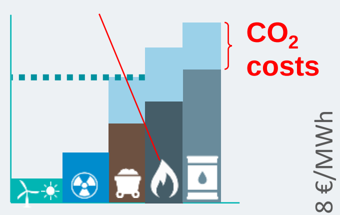
**Many things already work well…**

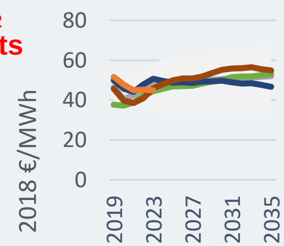
- ✓ Financial **markets** in Europe & power market (in the Nordics) **function well**.
- ✓ With market-based cost-efficient support schemes, **RES will keep on being more effective** and thus, less important to set up new structures

**BUT**

***We need indirects compensation in Europe as we face indirect CO2 costs even with RES PPAs***

*Merit Order Curve* → *Long term market expectations*




**How to promote demand of low-CO2 products?**

***Our companies have green-product offerings:***

ECOLUM™ Alcoa | Hydro REDUXA Low-Carbon Aluminium | RenewAl™ Low $CO_2$ Aluminium

*Tonnes of $CO_2$*

Al 1 tonne

| | | |
|---|---|---|
| China | 20 | x 3 $CO_2$ |
| Europe | 7 | |

**Potential for well-designed public procurement, standards & corporate procurement to play a role**

# THANK YOU

**Cillian O'Donoghue**
Director Energy and Climate Change
odonoghue@eurometaux.be

@Eurometaux

www.eurometaux.eu

Avenue de Broqueville 12 | B-1150 Brussels | Tel: +32 (2) 775 63 11 | eurometaux@eurometaux.be