



SEAWEED FOR PACKAGING



AMBITION

Today's packaging solutions contribute significantly to fossil-based climate change and plastic pollution. As an alternative packaging solution, seaweed demonstrates a combination of properties that makes it unique to other alternatives and helps reduce the footprint and plastic pollution of existing packaging.

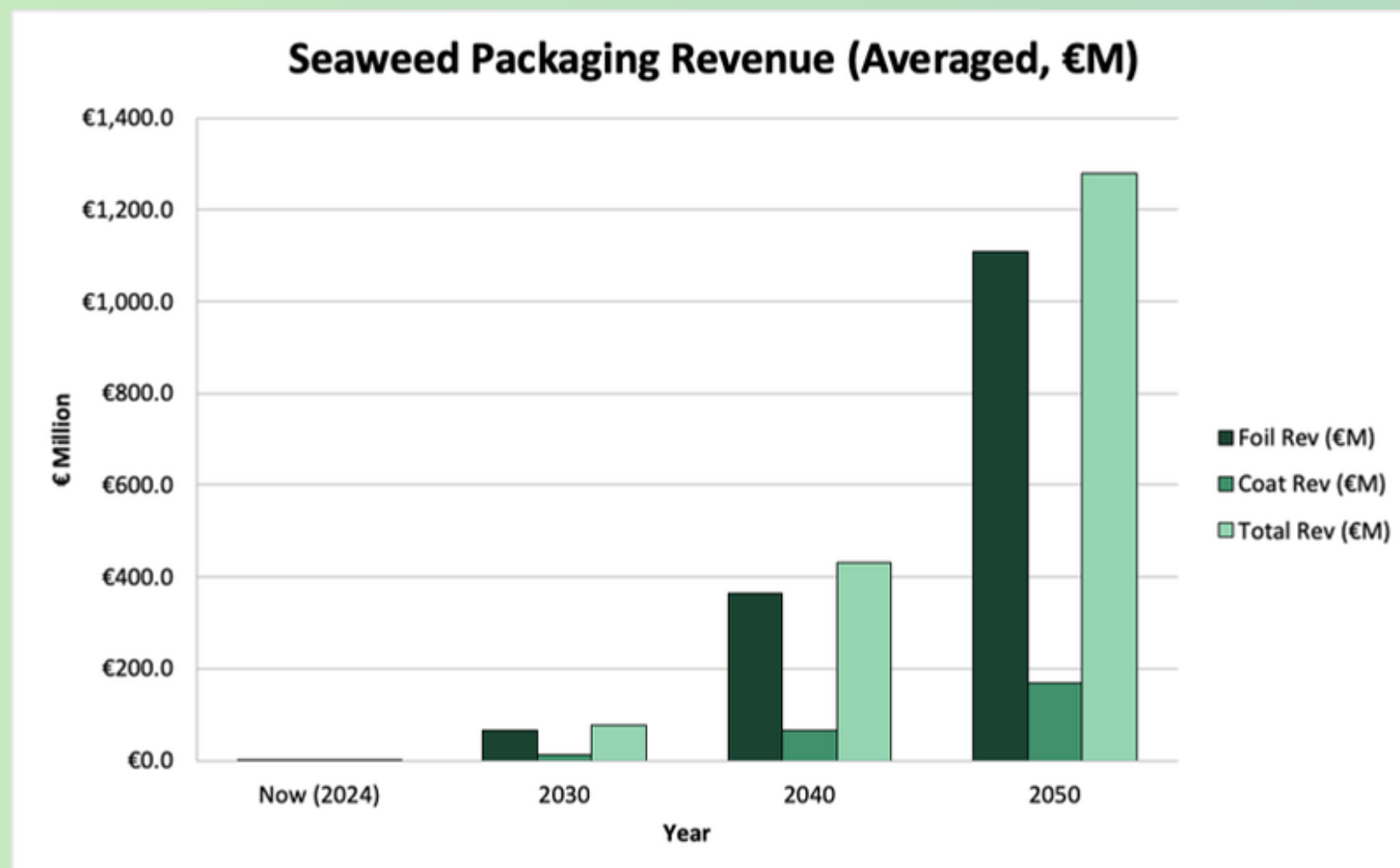
The European Seaweed Industry aims to replace virgin plastic in packaging solutions, leveraging its unique combination of plastic-free, biodegradability, low-carbon and functionally favourable properties.

By 2050, the European Seaweed Industry aims to:

- Replace 40% of plastic coatings on paper/cardboard with seaweed-based coatings
- Replace of 35% single-use foils in food packaging with seaweed-based foils

This ambition will required around 10.8mln ton of wet seaweed and

create a total market revenue of around €1.2bln for seaweed-based packaging.



The seaweed-based packaging market in Europe will a total market revenue of €1.2 bln in 2050

KEY INSIGHTS



Business opportunity as Single-Use Plastic alternative

Unmodified seaweed based packaging is plastic-free plus other benefits. This gives it a competitive edge to land-based alternatives in complying with the EU's SUP directive.



Supply of seaweed may be the limiting factor

When successful packaging solutions require scaling, then the limited capacity of EU's cultivation and also wild-harvest supply chain may become restrictive.



Will seaweed packaging comply with PPWR?

Today, the PPWR does not recognize new materials aside from paper, plastic, glass, aluminum. Environmental accreditations for biomaterials and seaweed don't get recognized in the legislation.

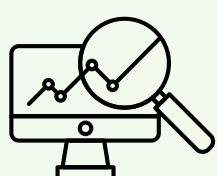


High price point requires smart market selection

Higher cost often outweighs ESG benefits. First focus on propositions that require little seaweed (coating) and/or focus on closed marketplaces where higher prices can be paid (festivals, concerts).

RECOMMENDED INDUSTRY ACTION

These actions could be followed-up in Joint Industry Projects and/or by research & innovation projects in Europe

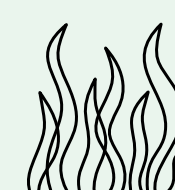


Actively **lobbying** for seaweed to be included in the PPWR is crucial and will impact future demand. Also closely **monitor the further recyclability & reusability requirements** in the PPWR and their impact on the future admissibility of seaweed-based packaging on the EU market (2027 onwards).



Identify & agree on high-potential market segments

where the combination of benefits of seaweed outweigh cost (unique, little seaweed) and/ or competition (no viable alternative).



Identify quality and composition requirements for seaweed

feedstocks that allow cultivated seaweeds to have a marketable advantage in the future.