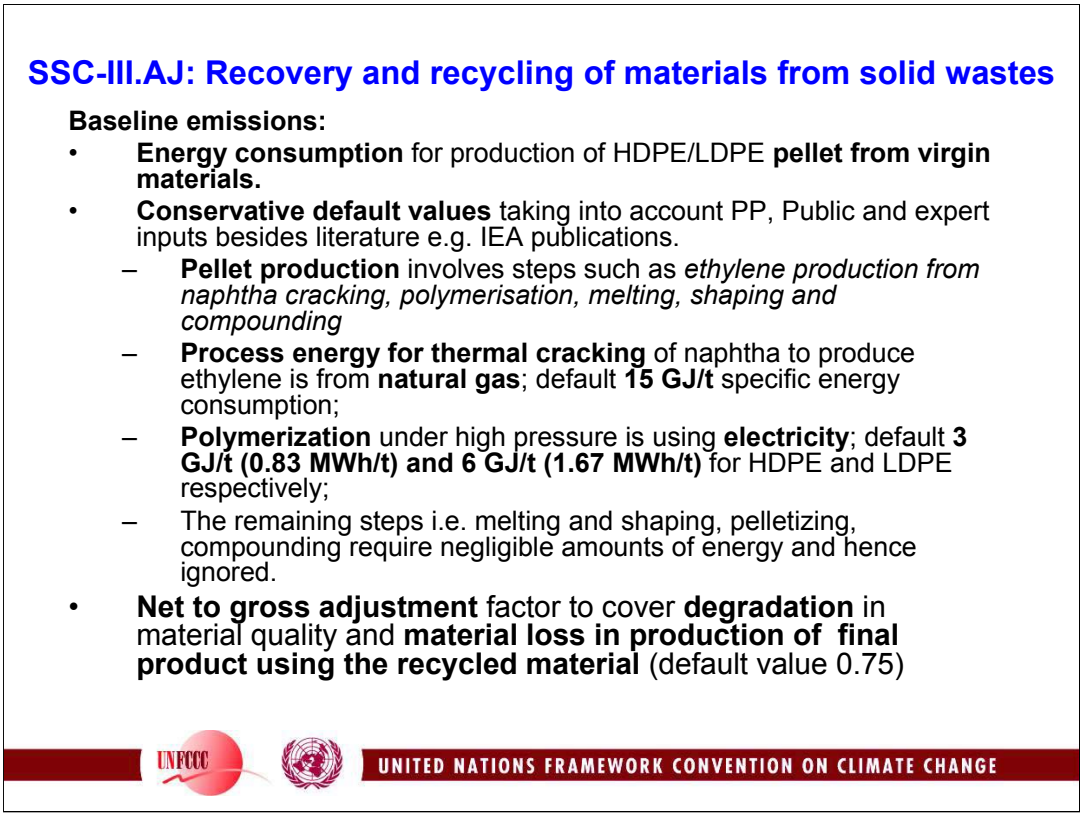


1. There are two main sources to produce ethylene: naphtha and ethane. The energy requirements for the separation processes for the production of naphtha or ethane are relatively small compared to the process of cracking into ethylene and will not be considered for conservativeness.

- **Process energy for thermal cracking:** Default value proposed by the PP is 20 **GJ/t**. The expert has estimated 20 MJ/kg value based on "IEA, 2007, Tracking Industrial Energy Efficiency and CO2 emissions" which is weighted average energy requirement of thermal cracking processes using Naptha, Ethane and Gas oil . According to IEA, Naphtha cracking represents about 45% of world ethylene production capacity while ethane cracking represents 35% and gas oil 5%. The weighted average is calculated using the following energy values: Naphtha: 22 MJ/kg; Ethane: 14.5 MJ/kg;Gas oil: 40 M J/kg. The calculation of weighted average value results: (22*0.45+14.5*0.35+40* 0.05 =~ 17)

- It is noted that as per table 4.4 given in the IEA 2007, the lowest specific energy consumption values for state-of-the-art naptha steam cracking technologies is 18 MJ/kg (also see pp 69 in IEA 2007) . If we use this value and take the weighted average, it results in 15 MJ/kg. This is at the most conservative side among the available data.

- **Polymerization** under high pressure is using **electricity**; The PPs poroposed energy requirement values of 5 GJ/t of HDPE and 8 GJ/t of LDPE are adopted based on the values reported in table 4.9 of the IEA 2007 which is EU weighted averages. The same table also reported EU best practice values of 3.14 GJ/t and 5.96 GJ/t for HDPE and LDPE respectively. The most conservative values are recommended due to uncertainties in the data .

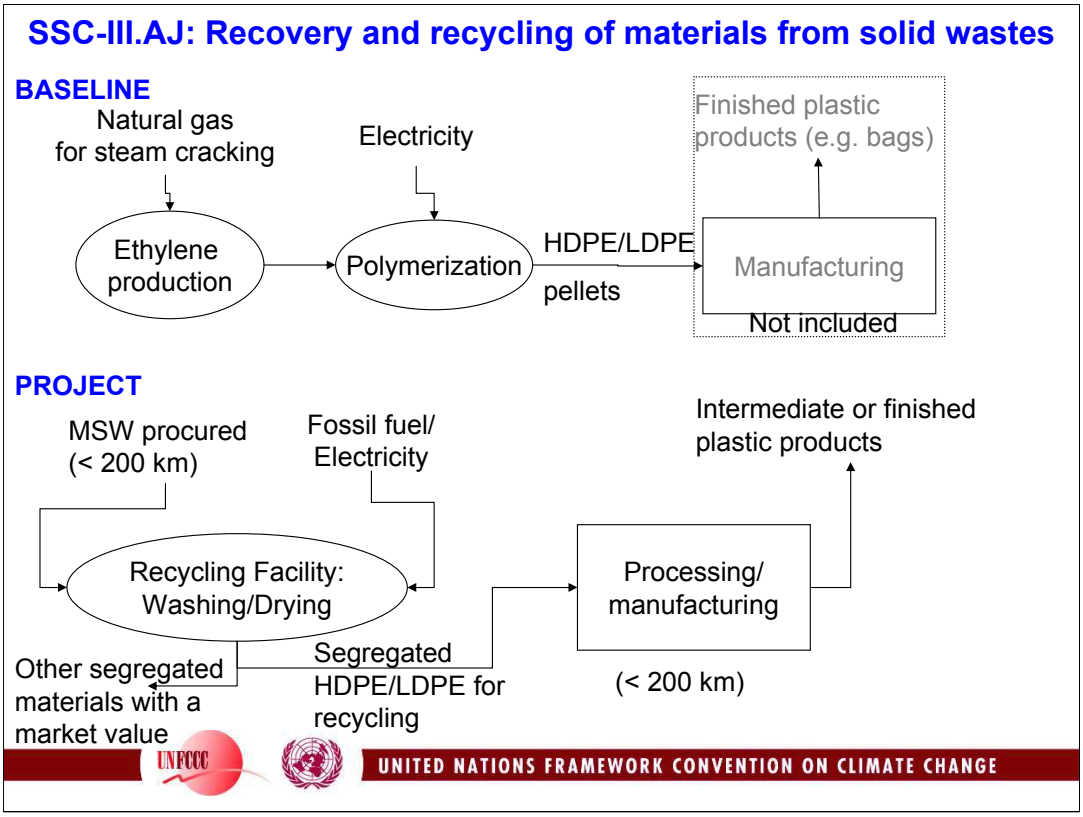
SSC-III.AJ: Recovery and recycling of materials from solid wastes

Project emissions

- Monitored electricity and fuel consumption of *recycling facility*
  - As a conservative approach, all project emissions allocated to recycled plastic:
  - Alternatively, allocated to each mass unit of segregated material by market prices, i.e., apportioning the emissions proportional to the market prices of plastics, metals, organics, glass, paper etc; The market prices either monitored *ex post* or determined once for the crediting period (rule applied only if transparent and reliable information on market prices is available);
- Default value for specific **electricity consumption** of **processing/manufacturing** of 0.5 MWh/t (1.8 GJ/t)

1.Emissions associated with transportation of recyclable materials and transportation for further processing/manufacturing under the project activity are considered as equivalent to the corresponding emissions for the virgin materials and therefore ignored in this methodology

2. Default value for specific **electricity consumption** of **processing/manufacturing** of 0.5 MWh/t (1.8 GJ/t) was the rounded off figure derived based on the figures proposed by the PPs (the sum of specific electricity consumption associated with i) compaction/Grannulation and ii) Pelletization of HDPE/LDPE (see page 9 of the report by Prof. Vlachapoulus under the submission SSC-NM043)



1. Use of recycled plastics to produce plastic products would save energy that otherwise would have been spent on producing plastic products using primary/virgin feedstock utilizing energy intensive steam racking process and polymerization
2. The only method for commercial production of virgin polyethylene is the energy intensive steam cracking of heavy hydrocarbons into ethylene gas and subsequent polymerization into flakes, which are converted into solid pellets.
3. Other materials such as glass, paper found in solid wastes that are manufactured in industrial processes can be potentially recycled, project proponents are encouraged to submit a revision of this methodology to include additional materials proposing conservative default values for specific energy consumption for the production from virgin raw materials.
2. MSW is defined as non hazardous waste materials suitable for deposition in a solid waste disposal site (SWDS).