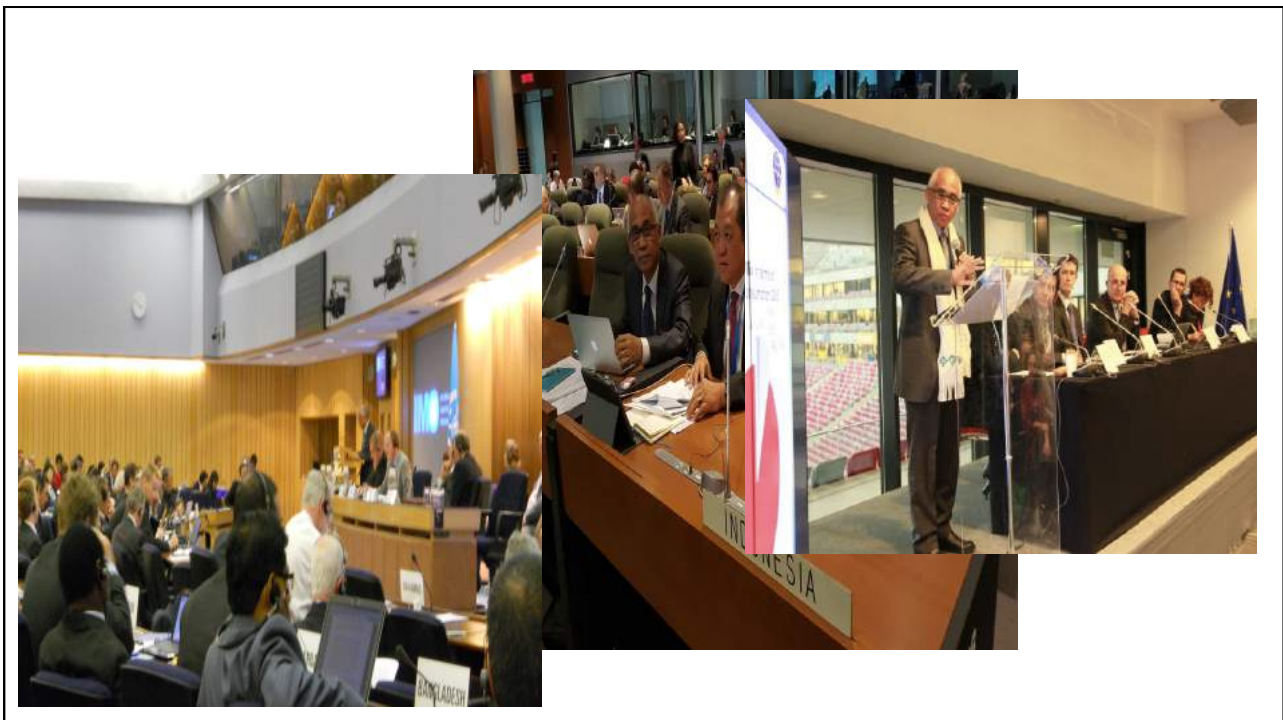


# ISU LINGKUNGAN DAN PERUBAHAN IKLIM PADA TRANSPORTASI (UDARA, LAUT, DARAT DAN KERETA API)

Jakarta, 22 JUNI 2020.

26 Feb 2020

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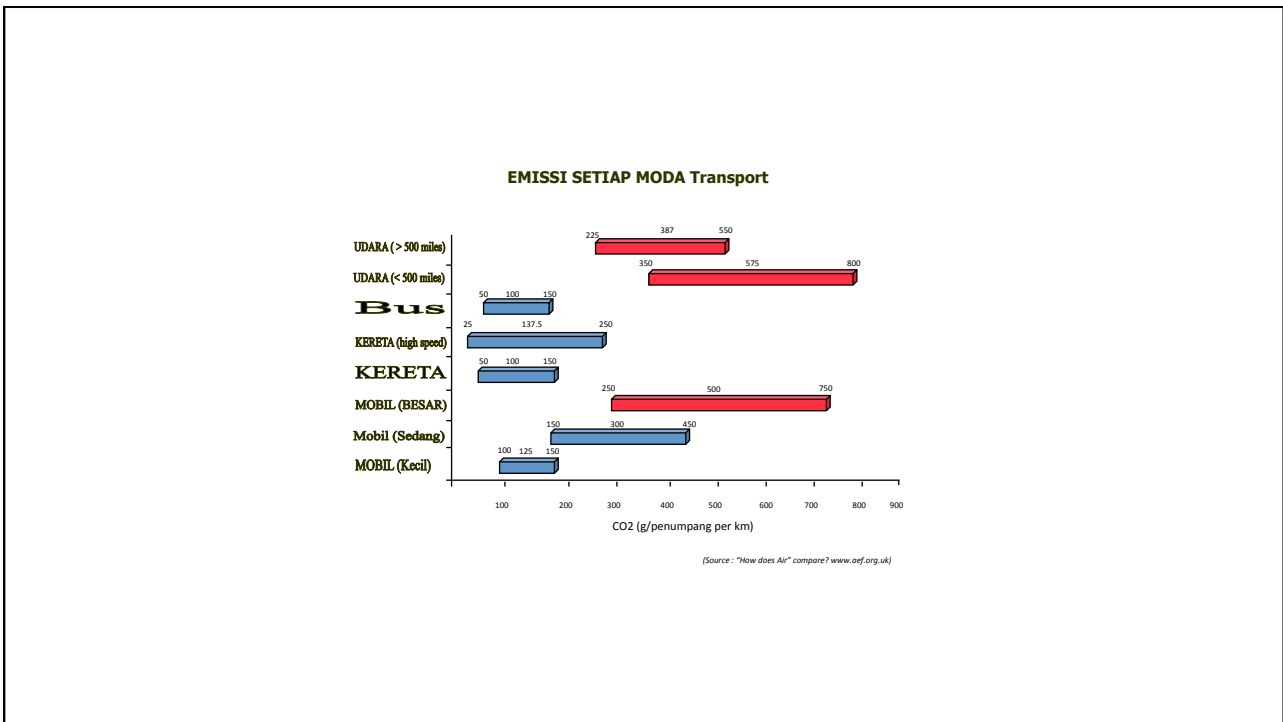


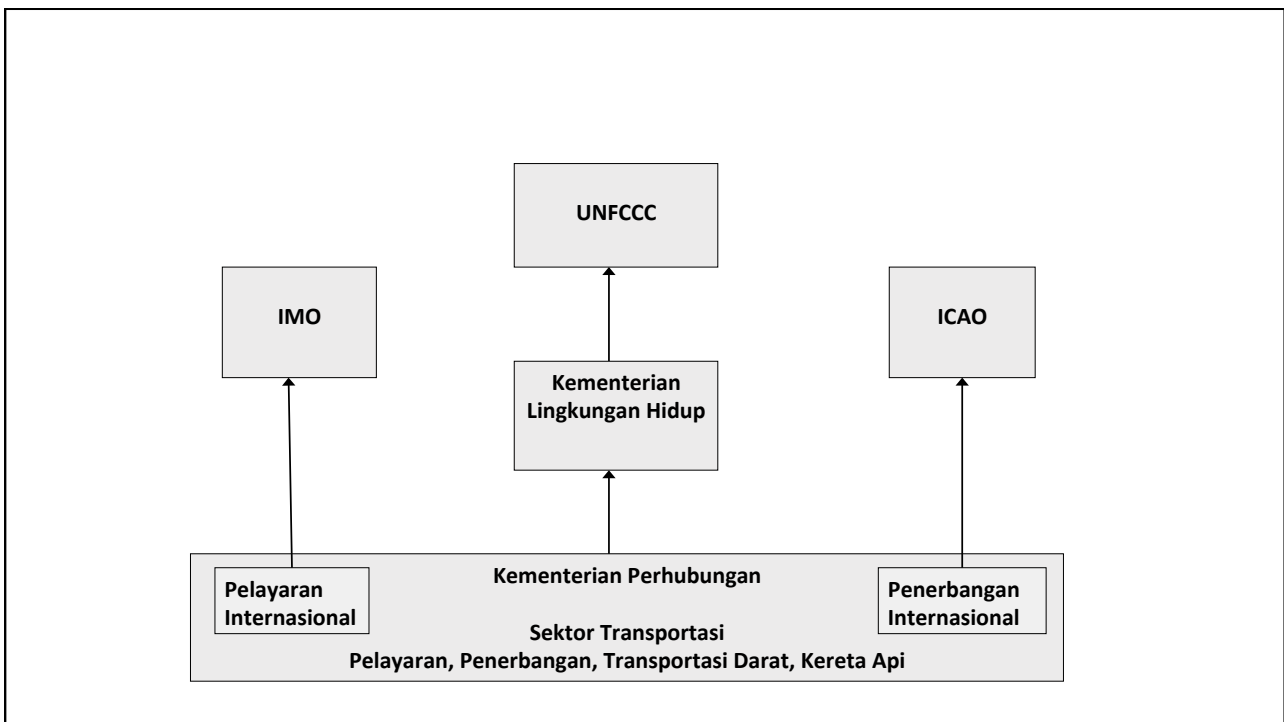
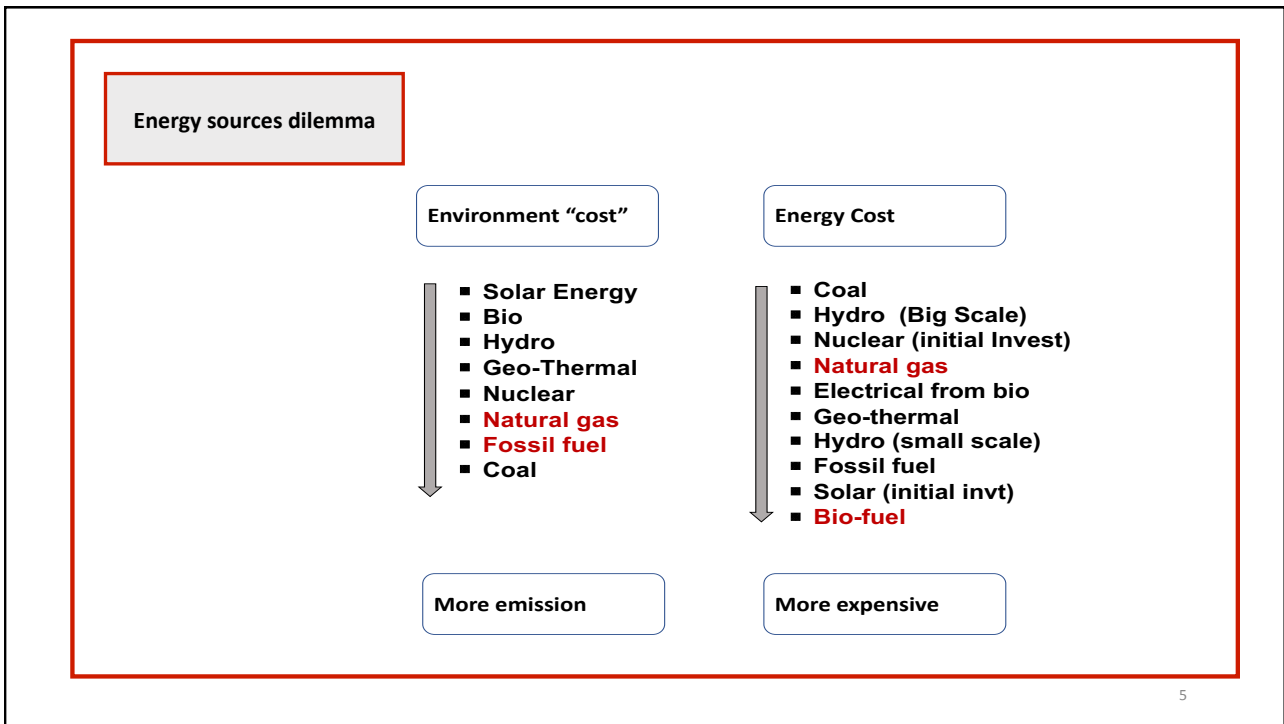
**CO2 from Transport**

**Fuel**

**CO2**

87 % of fuel content C  
 1 Kg fuel emits = 87% X 44/12 = 3.19 kg CO<sub>2</sub>  
 1 Litre fuel emits = 0.74 X 3.19 = 2.36 Kg CO<sub>2</sub>



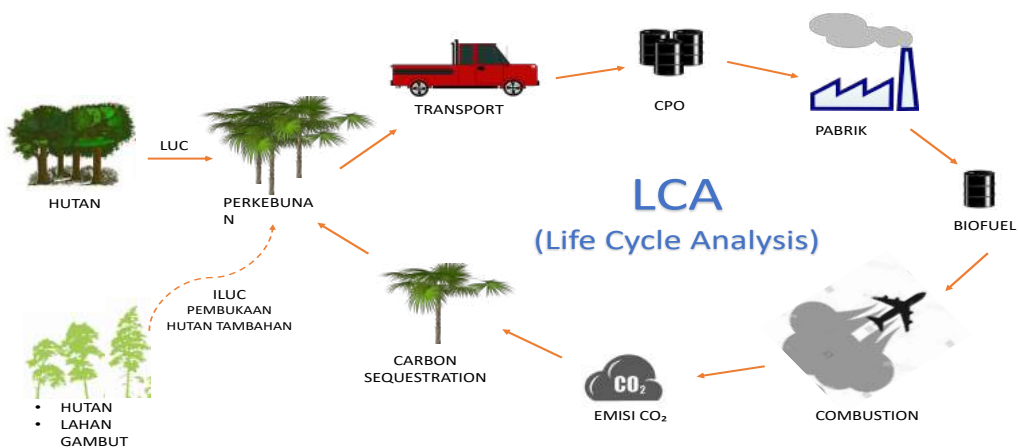


**Pollution Cf Global Warming ?**

	POLUSI UDARA / AIR POLLUTION (1)	PERUSAKAN LAPISAN OZONE (O3) (2)	GAS RUMAH KACA / GREEN HOUSE GASES (3)
Peraturan	UU 32 th 200, Baku Lingkungan	Montreal Protocol 1987	Kyoto Protocol 1997 UU 1 201, Paris Agreement, NDC
Akibat	Penyakit Pernafasan, Keracunan, Penyakit Kulit, Dll	- Radiasi Sinar Ultra Violet Menyebabkan Berbagai Penyakit Berbahaya bagi Kehidupan	Pemanasan Global, Cuaca Ekstrem, Perubahan Iklim/Climate Change, bencana alam, gagal panen
Unsur Kimia Berbahaya	SO <sub>x</sub> , NO <sub>x</sub> , CO, Pb, PM	-CFC, HCFC	- CO <sub>2</sub> , CH <sub>4</sub>
Sumber	- Gas Buang Kendaraan - Gas Buang Industri	- Zat Pemadam Kebakaran (Halon banyak dipakai pada pesawat dan Kapal) - Zat Pendingin (Gedung-gedung, peralatan)	- Bahan Bakar Fosil (Transportasi, Industri, Listrik, Rumah Tangga) - Perusakan Hutan
Sifat	-Local , Domestic	-Global	-Global, Jangka Panjang

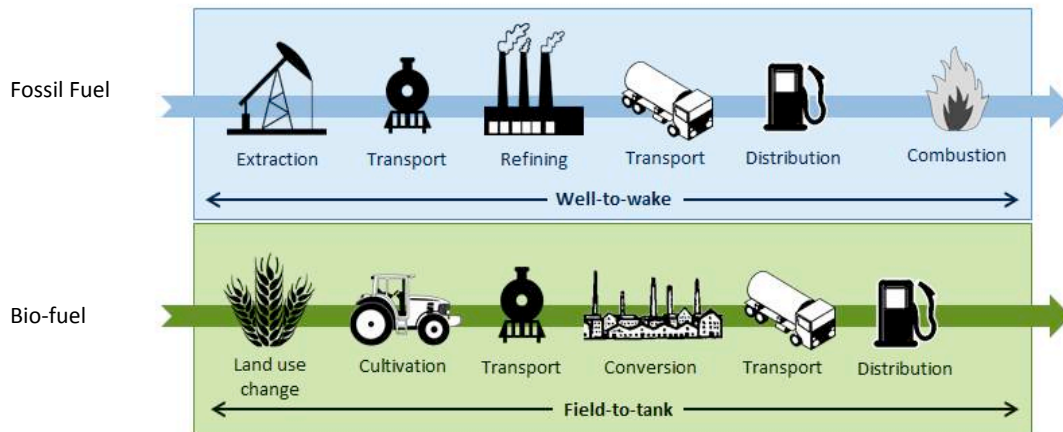
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**What are LCA and ILUC?**



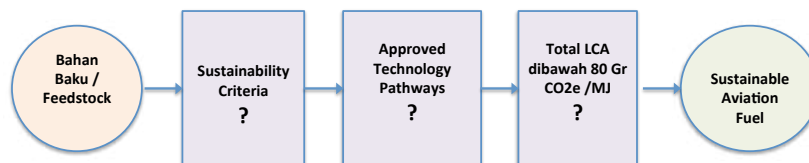
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**LCA ; Fossil fuel c.f. Bio-fuel  
(Source : ICAO)**

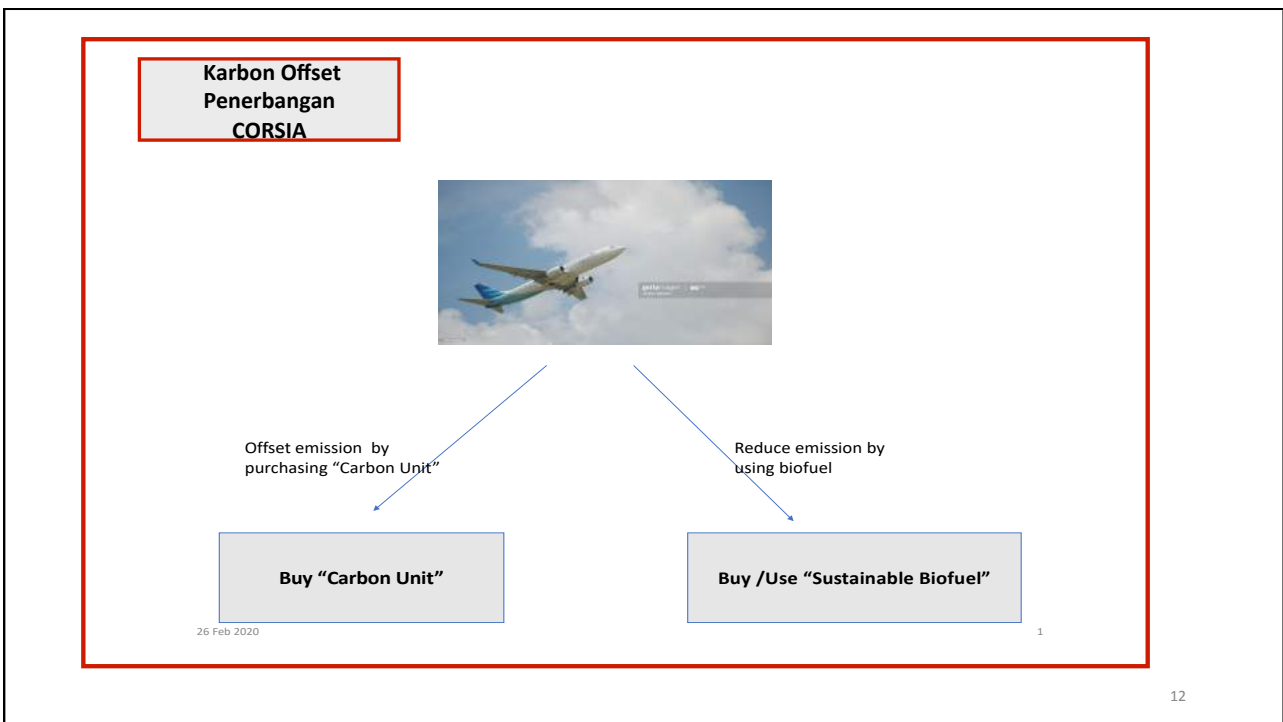
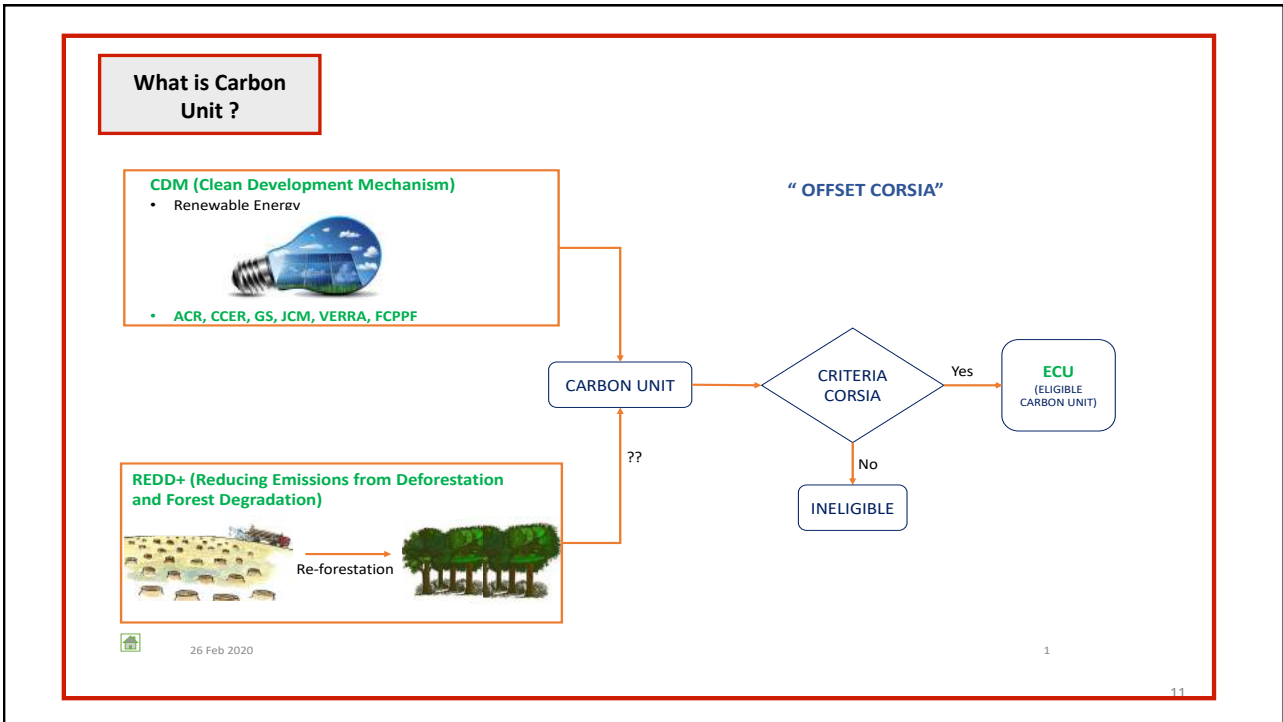


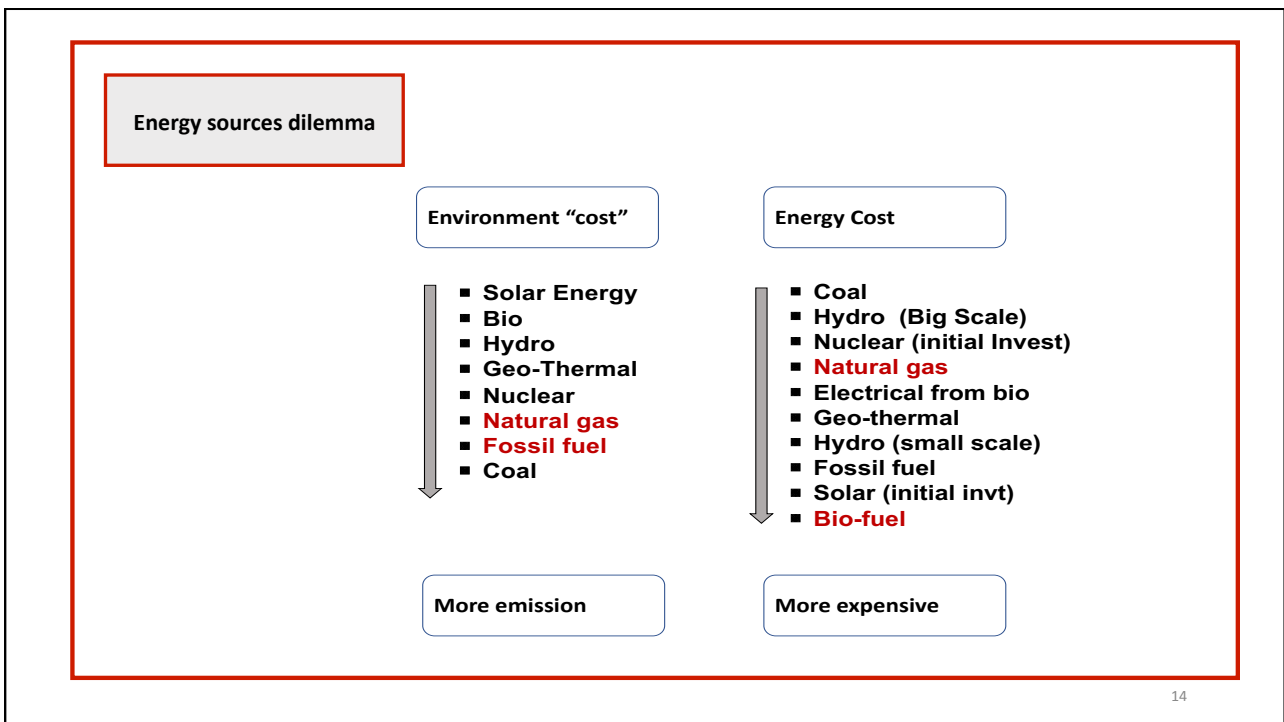
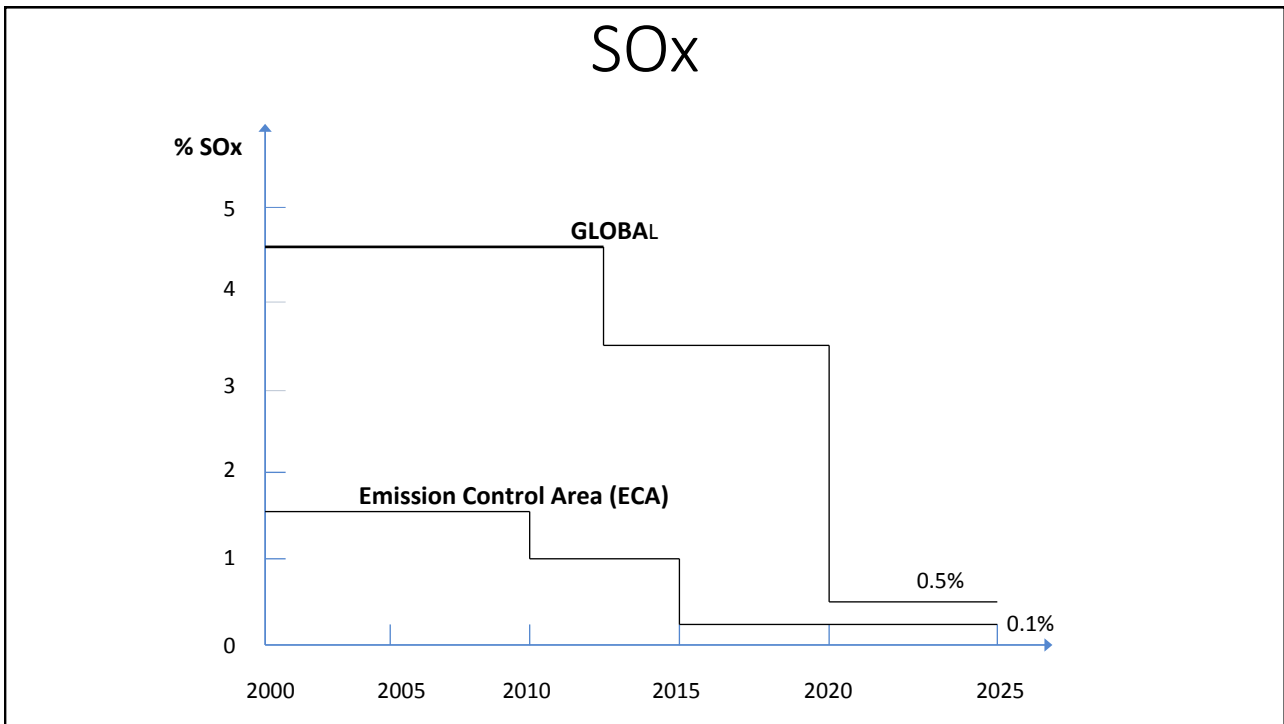
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**Persyaratan Aviation Biofuel**



- Bahan baku harus memenuhi persyaratan Sustainability kriteria
- Teknologi pembuatan aviation biofuel harus sesuai standard ASTM
- Total nilai LCA harus lebih kecil dari 80 Gram CO<sub>2</sub>e/MJ, yaitu 90% nilai default konvensional Jet A (89 gram CO<sub>2</sub>e/MJ)







*Terimakasih*

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