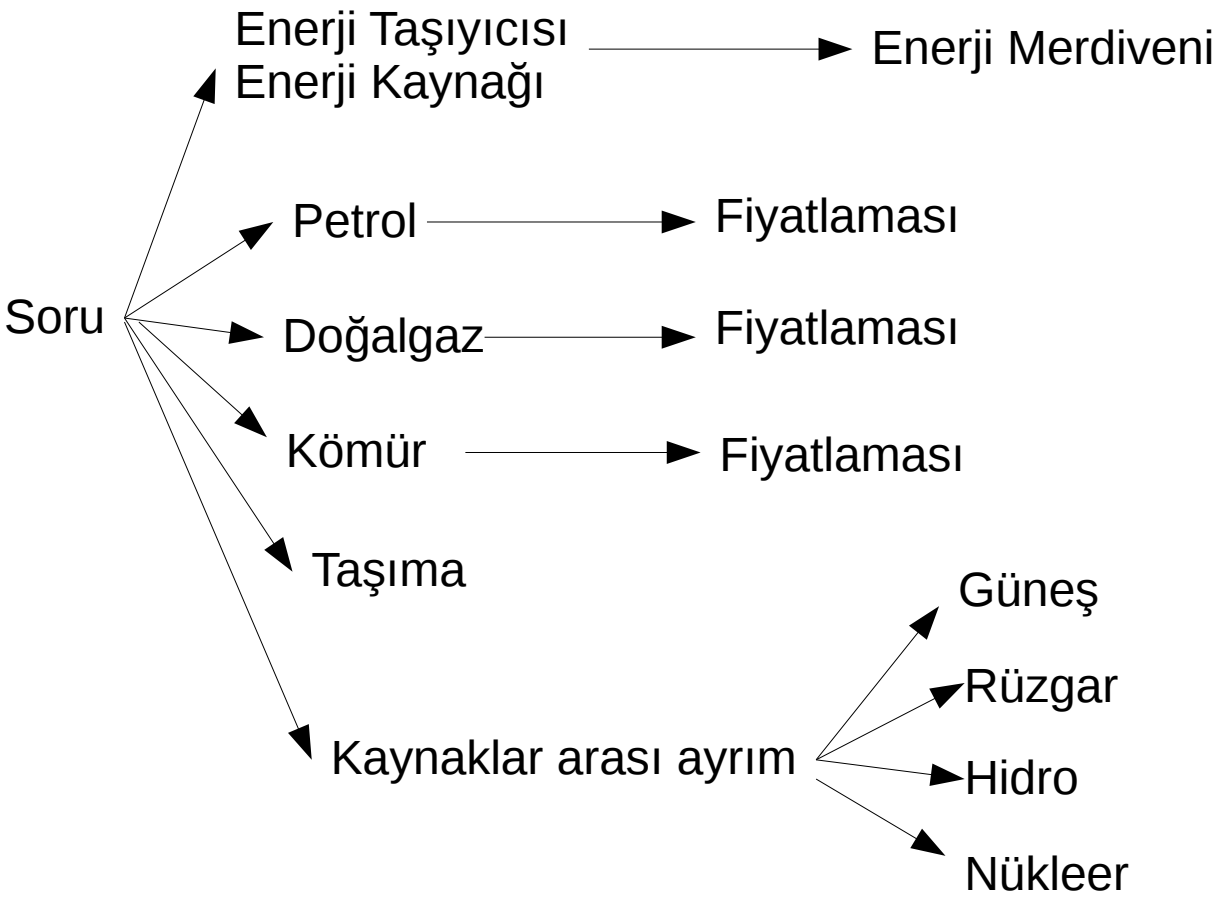
Enerji 101 – Ders 2

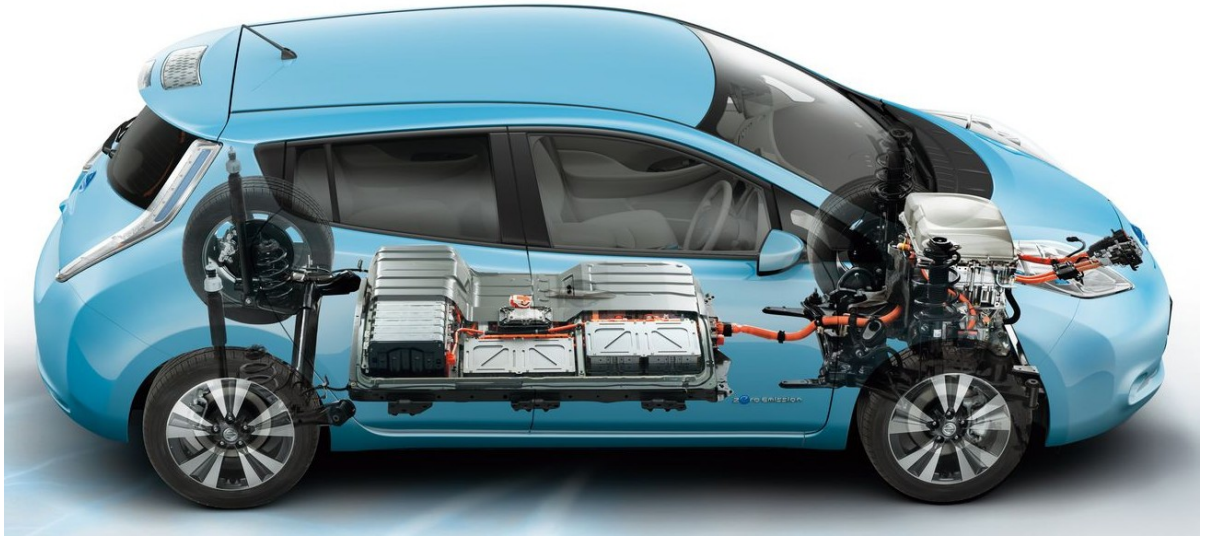
Enerji Kaynakları, Özellikleri ve Fiyatlama Yapısı

Barış Sanlı

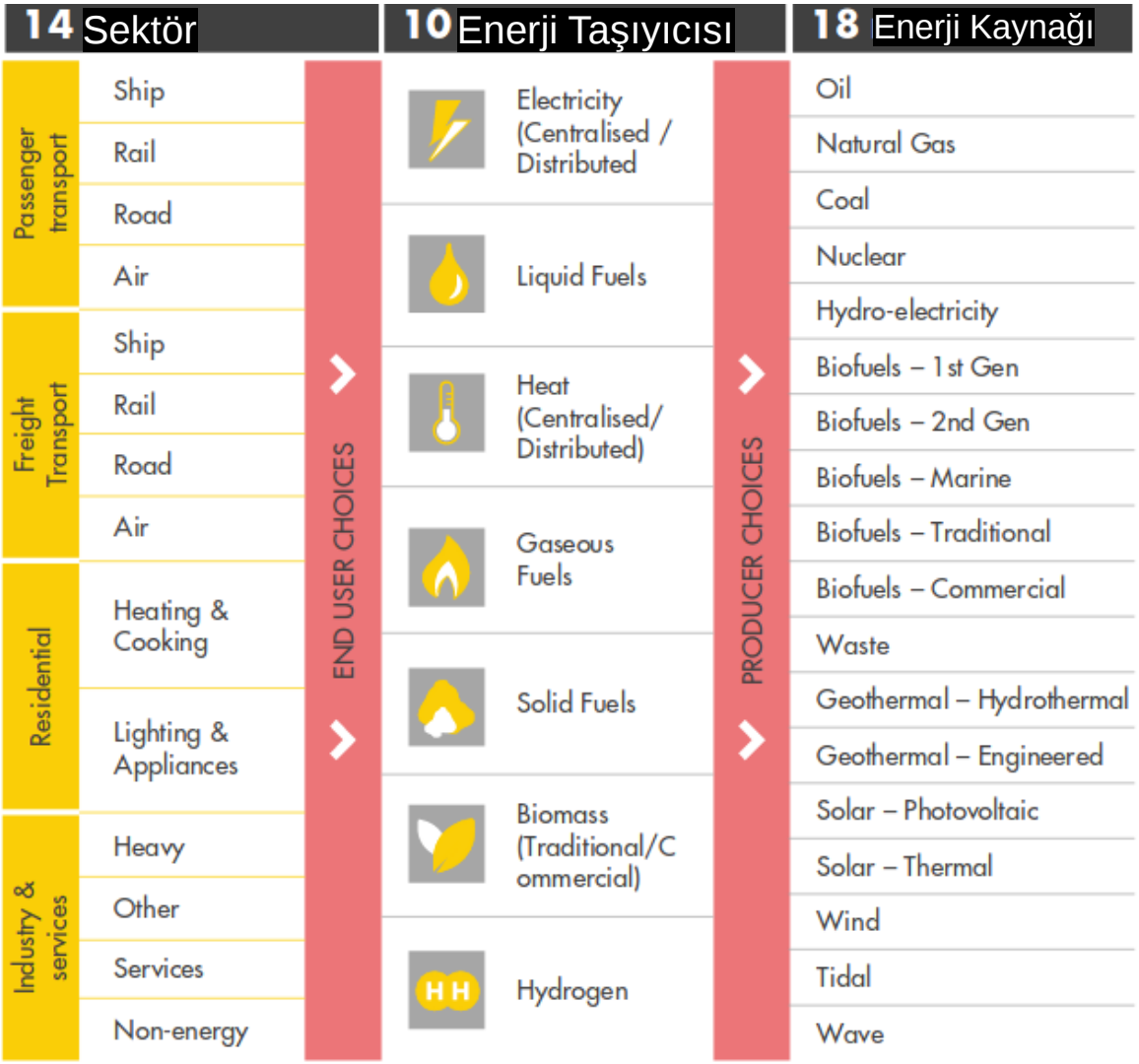
Genel yapı


Soru
Enerji Taşıyıcısı
Enerji Kaynağı
Enerji Merdiveni
Petrol
Fiyatlaması
Doğalgaz
Fiyatlaması
Kömür
Fiyatlaması
Taşıma
Kaynaklar arası ayrım
Güneş
Rüzgar
Hidro
Nükleer

Elektrikli araba ve Elma

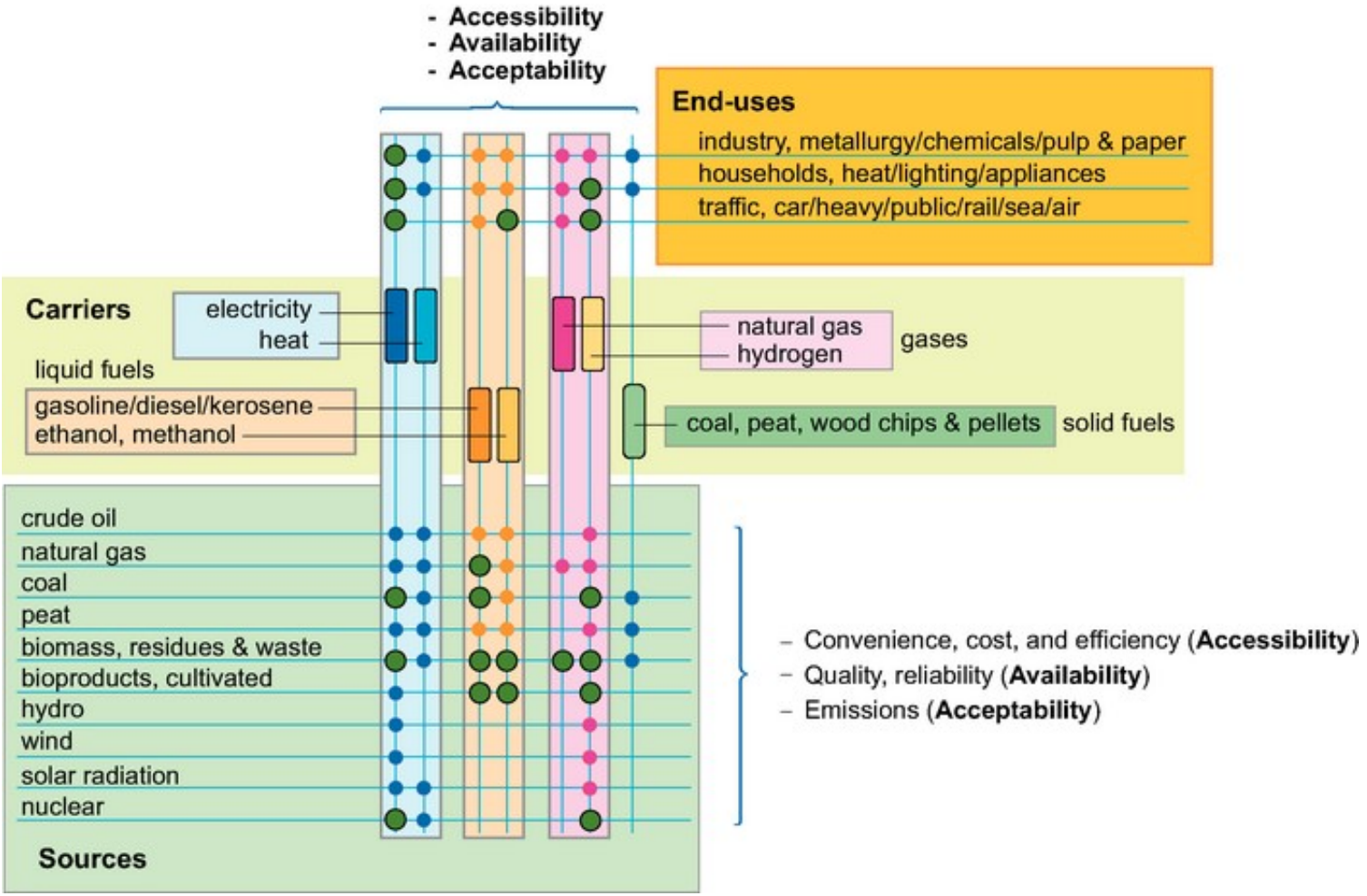


Enerji taşıyıcısı ve Enerji kaynağı



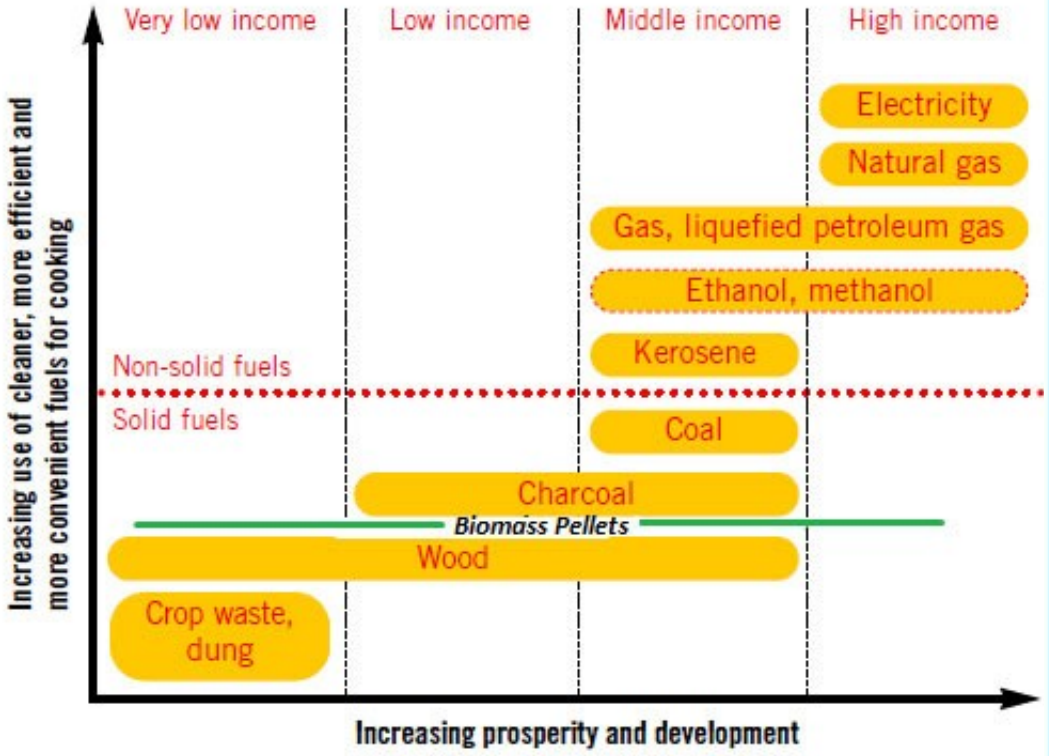
https://www.shell.com/investors/news-and-media-releases/investor-presentations/2017-investor-presentations/shell-scenarios-modelling-and-decision-making-webcast/

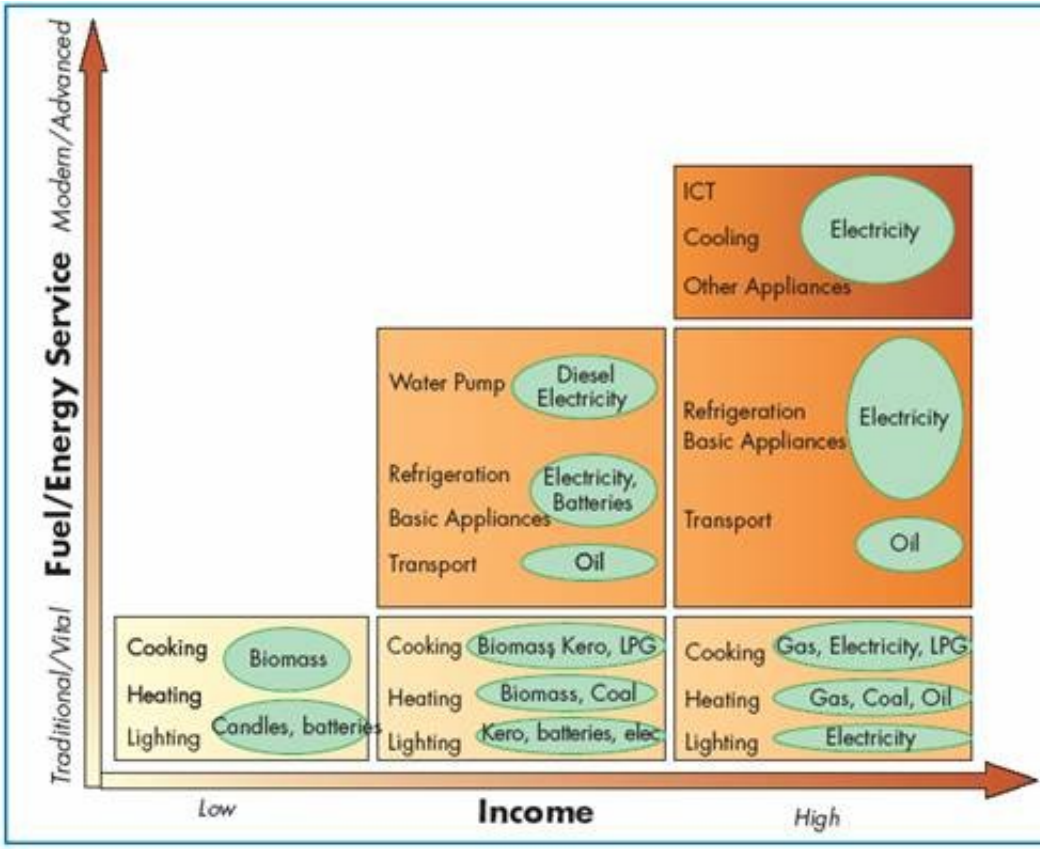
IPCC yaklaşımı



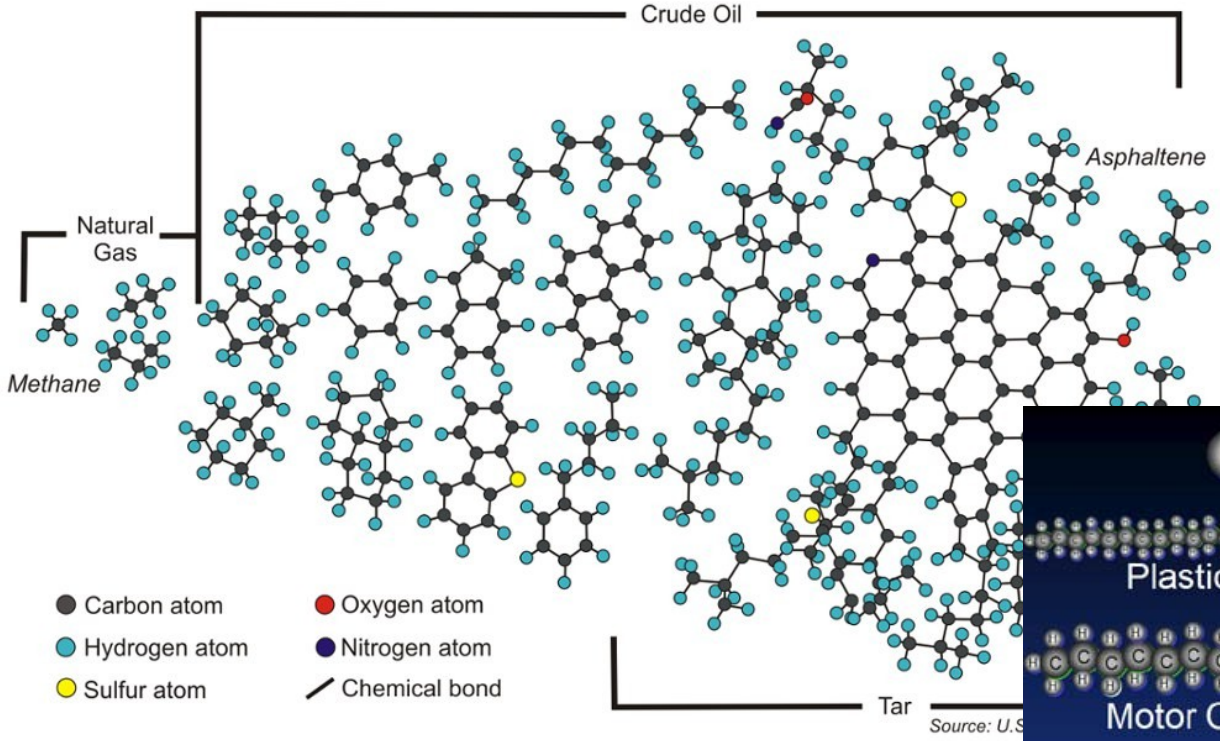
http://www.ipcc.ch/publications_and_data/ar4/wg3/en/figure-4-17.html

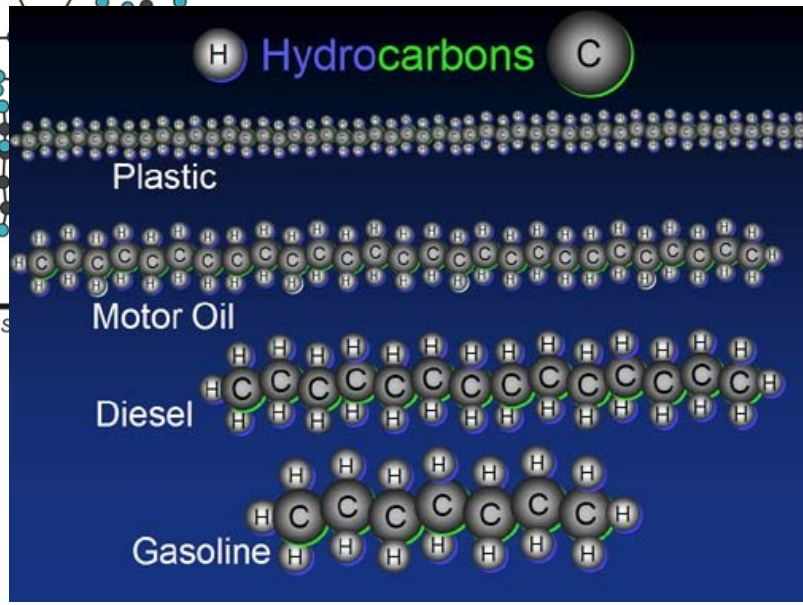
Enerji merdiveni





Petrol: Bir Kokteyl





Petrol Fiyatlaması

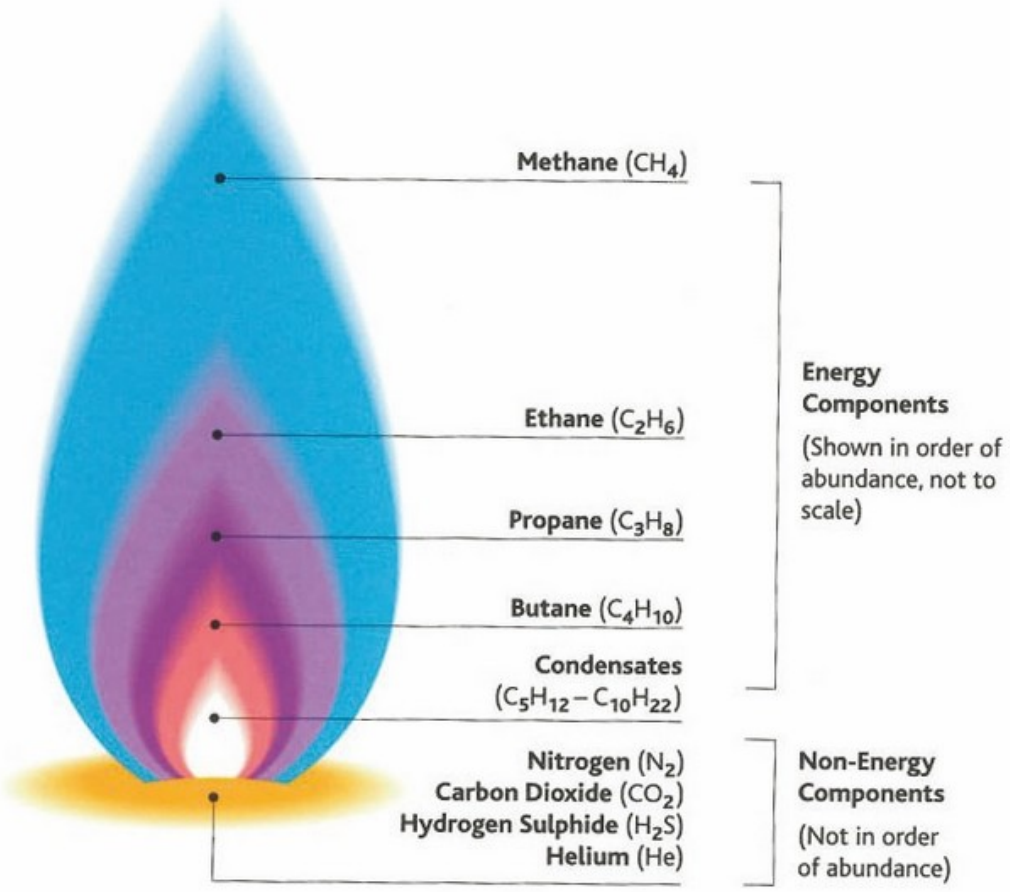
- OSP: Official selling price
- WTI
- Brent

- NYMEX (https://www.cmegroup.com/trading/energy/crude-oil/light-sweet-crude.html)
- DME (https://dubaimerc.com/dme-data)
- The ICE (daha önce IPE , https://www.theice.com/brent-crude)
- Shangai Futures Exchange (http://www.shfe.com.cn/content/2018-yyQH-en/index.html)

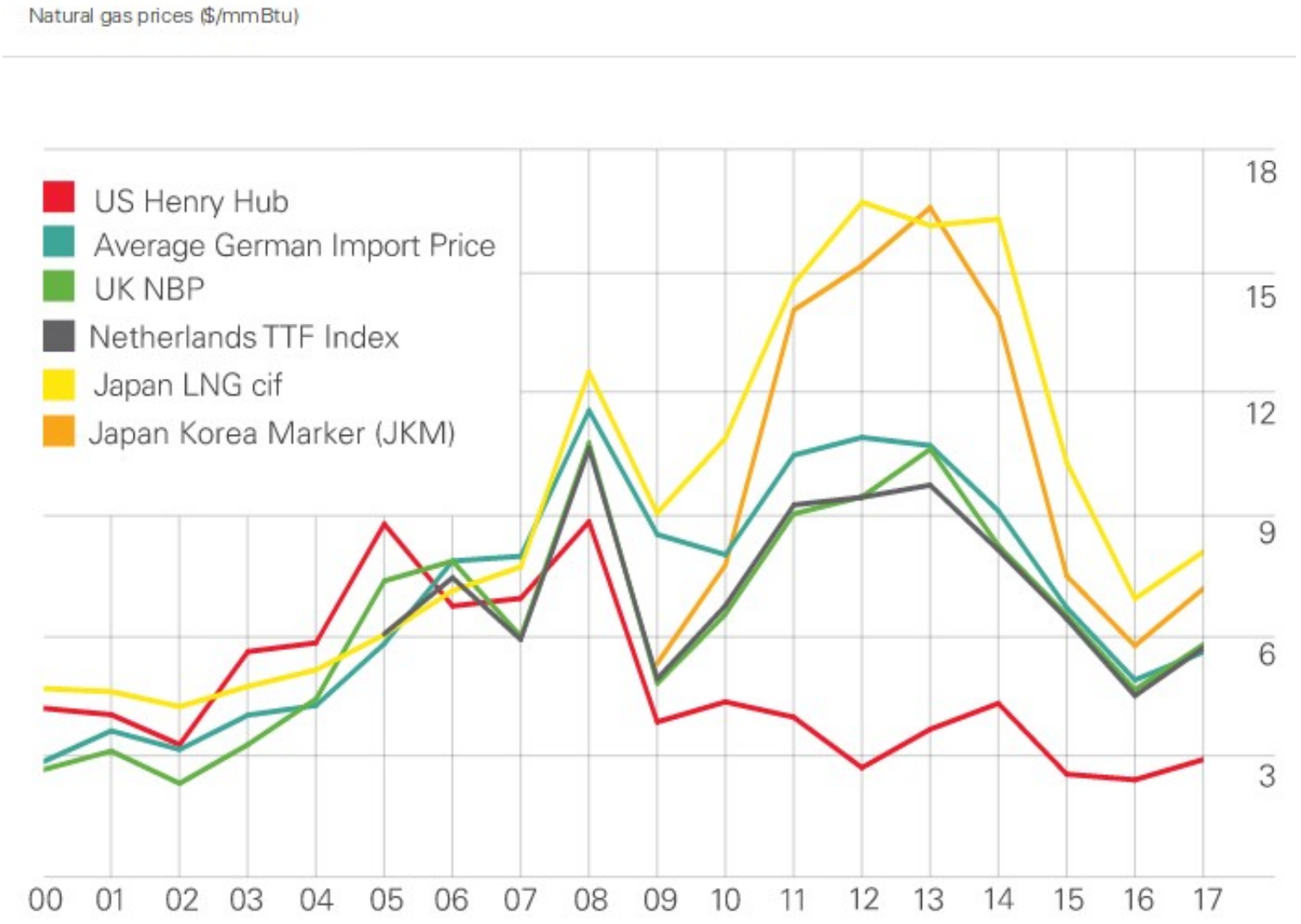
http://archives.mees.com/issues/1680/articles/54595

Doğalgaz

	Canada	Kansas	Texas
C1	77.1	73.0	65.8
C2	6.6	6.3	3.8
C3	3.1	3.7	1.7
C4s	2.0	1.4	0.8
C5s+	3.0	0.6	0.5
H_2S	3.3	0.0	0.0
CO_2	1.7	0.0	0.0
N_2	3.2	14.7	25.6
He	0.0	0.5	1.8

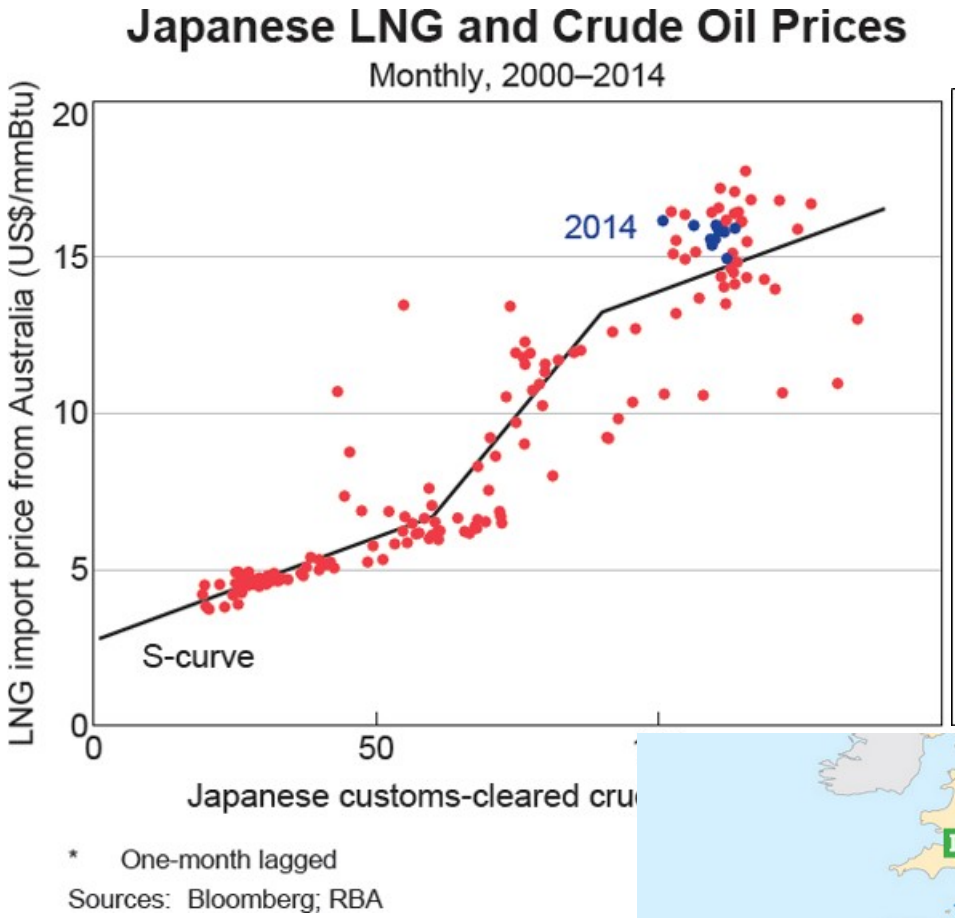


Doğalgaz Fiyatlaması

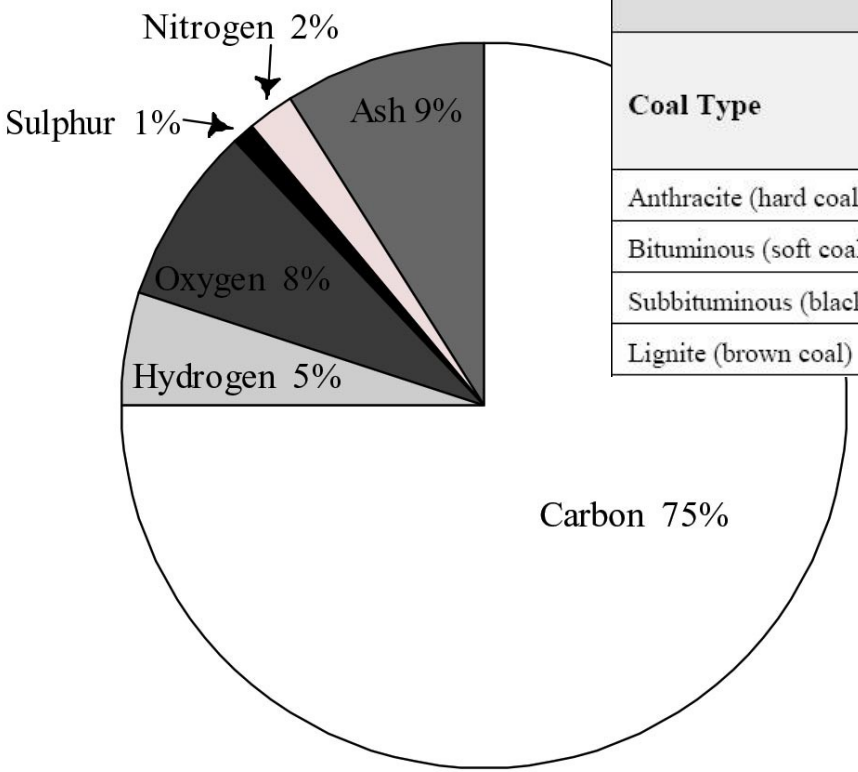


https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy/natural-gas/natural-gas-prices.html

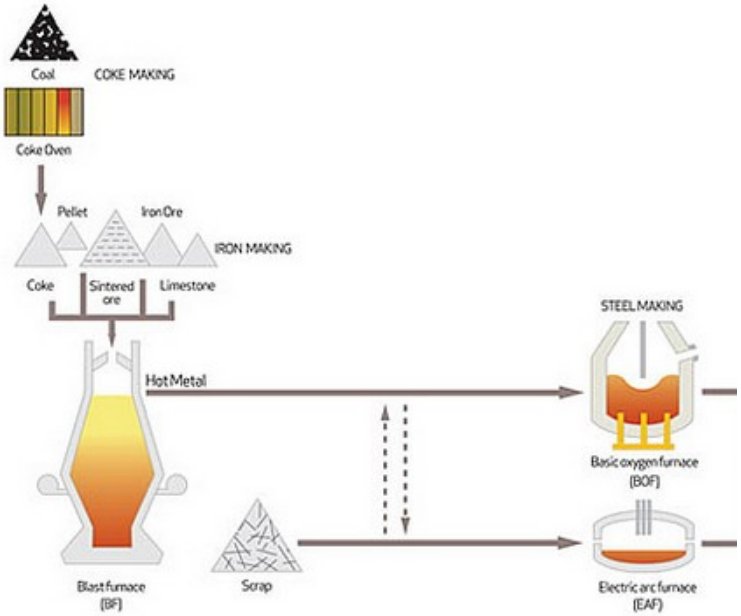
Farklı fiyat yapıları



Kömür

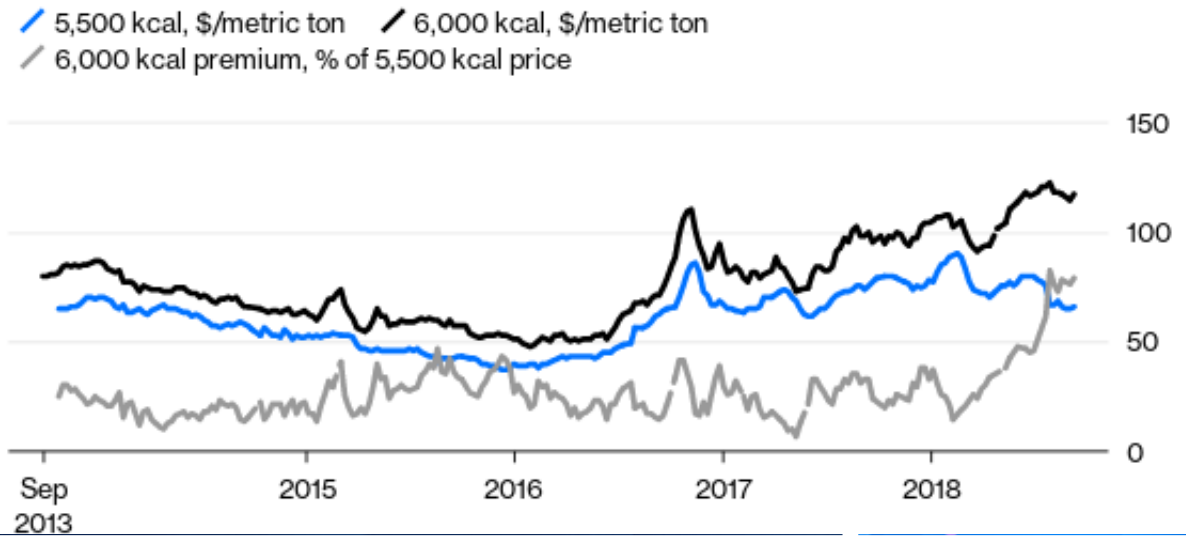


Types of Coal and Their Characteristics					
Coal Type	**Percent Carbon**	**Heating Range Values (MMBtu/ton)**	**Heating Avg. (MMBtu/ton)**	**Moisture Content by Weight**	**Sulfur Content by Weight**
Anthracite (hard coal)	86-97%	22 to 28	25	usually < 15%	0.6%
Bituminous (soft coal)	45-86%	21 to 30	24	usually < 20%	1.4%
Subbituminous (black lignite)	35-45%	17 to 24	18	20-30%	0.4%
Lignite (brown coal)	< 35%	9 to 17	13	as much as 45%	1.0%



https://www.chemenggspot.net/2017/09/coal-to-power-generation-technique.html

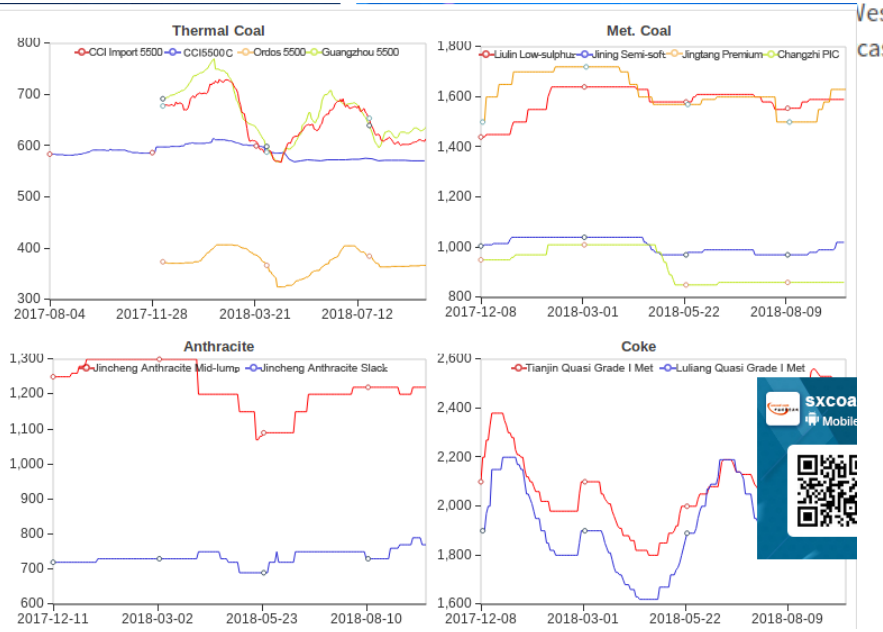
Kömür fiyatlaması



- NW Europe CIF (6,000kc NAR) – Part of API 2
- Richards Bay FOB (6,000kc NAR) – Part of API 4
- South African FOB (5,500kc NAR)– Part of API 3
- Australian FOB (5,500kc NAR) – Part of API 5
- Newcastle FOB (6,000kc NAR) – Part of API 6
- South China CFR (5,500kc NAR) – Part of API 8
- South China CFR (4,900kc , 6,000kc NAR) – produced with Xinhua
- Qinhuangdao (domestic/export) FOB (5,000, 5,800 6,000kc)
- Indonesian FOB (6,000kc NAR) / FOB (5,500kc NAR)
- Indonesian Sub-Bit FOB 4,900kc NAR, 4,200kc/3,800kc GAR
- Indian CFR (5,500kc NAR) East & West coast – Part of API 12
- India East Coast CFR & West Coast (5,000kc / 4,200kc)
- US East Coast & US Gulf High Sulphur FOB (6,000kc)
- Bolivar Colombian FOB (6,000kc NAR) – Part of API 10
- West Coast FOB (6,000kc NAR) East Coast (6,700kc)
- castle Thermal Coal Export) Index

Last Week 2018-09-21 More>>

Index	RMB/t	DoD	$US/t	DoD	Basis
CCI5500C	571.00	-	0.00	-	FOB
CCI 5500 Import	609.55	-0.89	76.60	-	CFR
CCI 3800 Import	374.01	-0.54	47.00	-	CFR
Yulin 5800	411.00	+1	0.00	-	Mine-mouth
Ordos 5500	367.00	-	0.00	-	Mine-mouth
Datong 5500	460.00	-	0.00	-	Mine-mouth
Guangzhou 5500	735.00	-	0.00	-	Ex-stock
Liulin Low-sulphur	1590.00	-	0.00	-	Ex-washplant
Liulin High-sulphur	1160.00	-	0.00	-	Ex-washplant
Linfen 1/3 Coking	1330.00	-	0.00	-	Ex-washplant
Changzhi Meagre Lean	1030.00	-	0.00	-	Ex-washplant
Jining Semi-soft	1020.00	-	0.00	-	Ex-washplant
Jingtang Premium	1630.00	-	0.00	-	Ex-stock
Mongolia Coking	1110.00	-	0.00	-	Ex-stock
Changzhi PCI	860.00	-	0.00	-	Ex-washplant
Jincheng Anthracite Mid-lump	1220.00	-	0.00	-	Ex-washplant
Jincheng Anthracite Slack	770.00	-20	0.00	-	Ex-washplant
Tianjin Quasi Grade I Met	2450.00	-20	0.00	-	FOB
Luliang Quasi Grade I Met	2250.00	-50	0.00	-	Ex-washplant

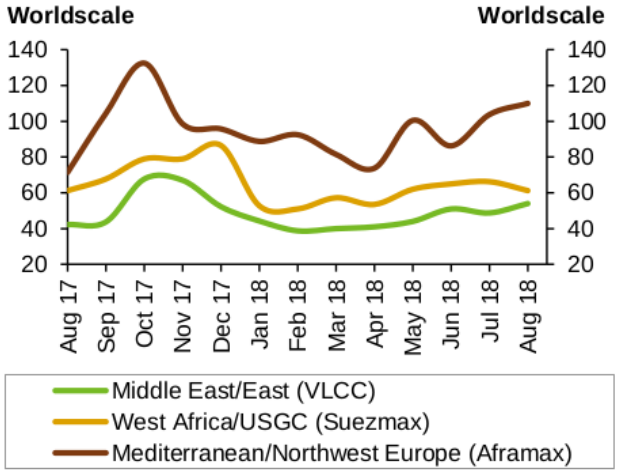


https://www.bloomberg.com/view/articles/2018-09-20/coal-s-price-conundrum-betrays-an-invisible-hand

Taşıma

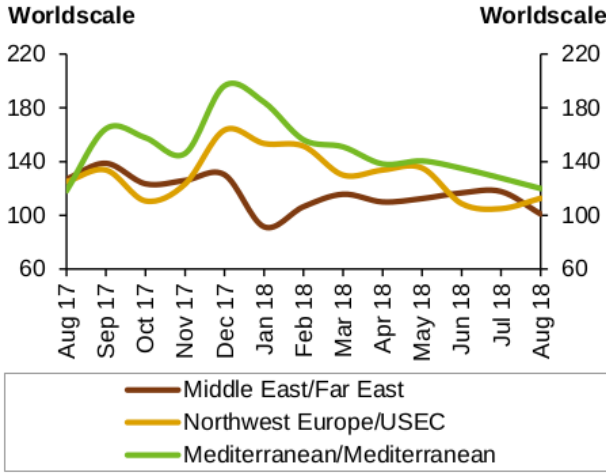
- FOB: gemiye yüklerim gerisine karışmam
- CIF: Kapıya teslim masraflar dahil
- DES: Gemide teslim (anlaşılan limana kadar)
- Baltic Dry Index

Graph 7 - 1: Crude oil spot tanker freight rates, monthly average



Sources: Argus Media and Platts.

Graph 7 - 2: Products spot tanker freight rates, monthly average



Sources: Argus Media and OPEC Secretariat.

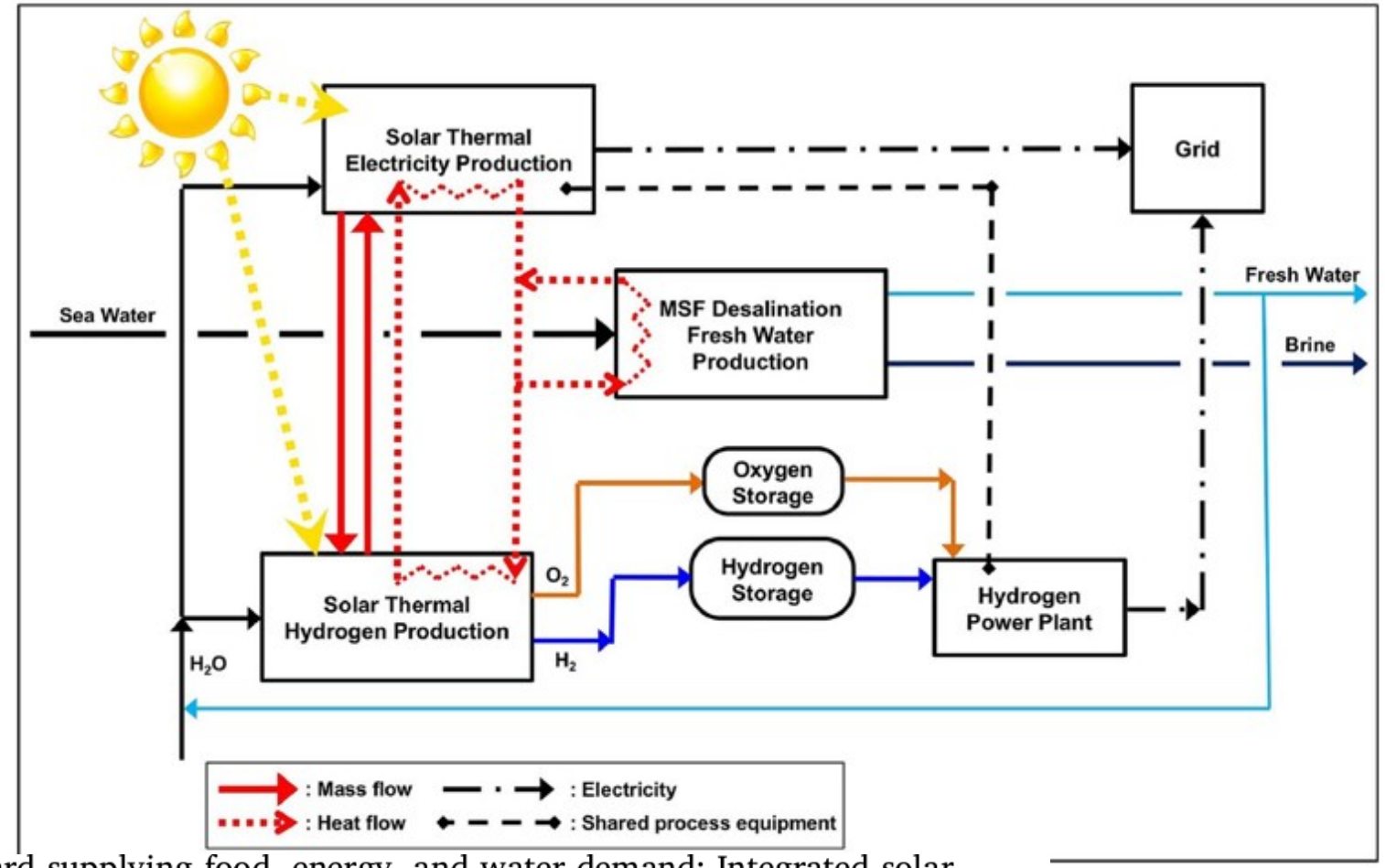
http://parsiyeliran.net/lojistik-terimler

Kaynaklarda ayrım

- Marjinal maliyete göre (Fiyatlama şekli)
  - Değişken marjinal maliyetli (Ör: CD)
  - Sıfır marjinal maliyetli (Ör: Spotify)
- Üretim sistemine göre (elektrik odaklı)
  - Yönetilebilen (tevzilenebilir)
  - Kesikli (üretim zamanı kontrolünde değil)

Güneş

- Silikon, perovskit



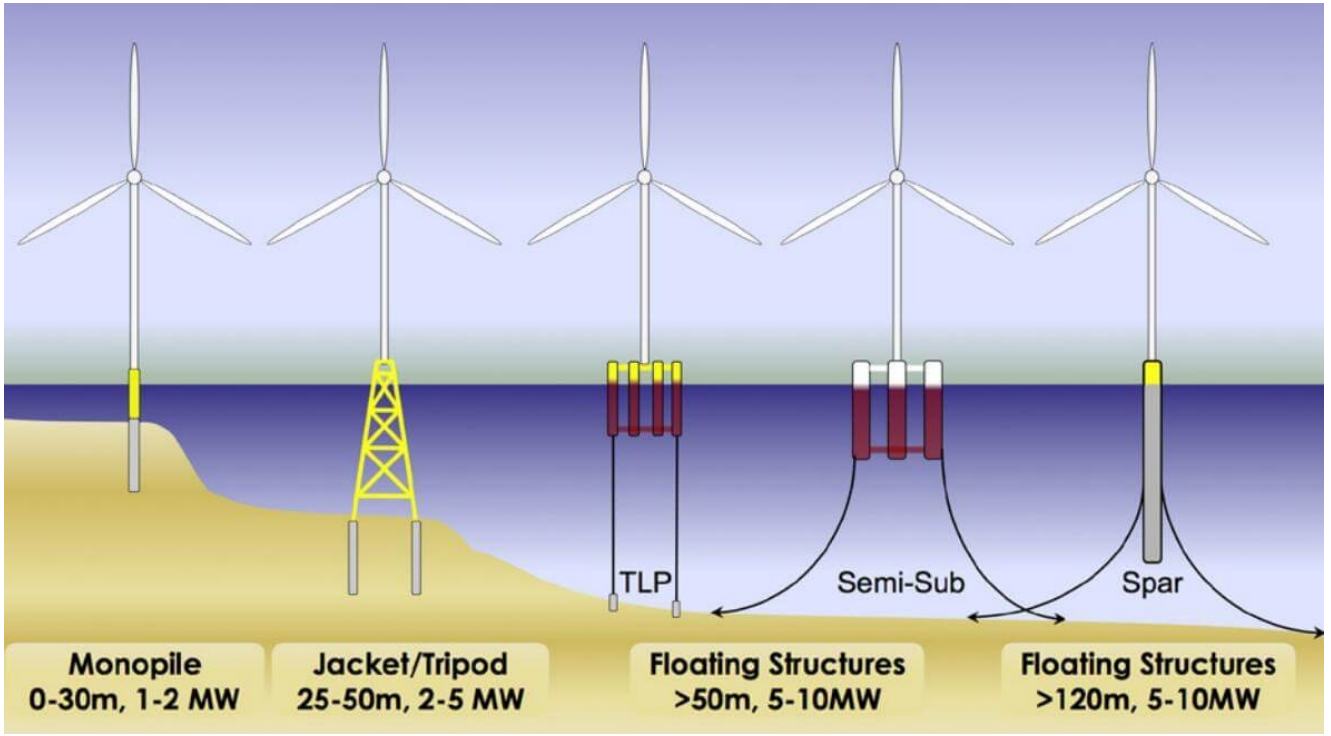
Toward supplying food, energy, and water demand: Integrated solar desalination process synthesis with power and hydrogen coproduction

Emre Gençer[a,b], Rakesh Agrawal[a,*]

[a] School of Chemical Engineering, Purdue University, West Lafayette, IN 47906, United States
[b] MIT Energy Initiative, Massachusetts Institute of Technology, Cambridge, MA 02139, United States

Rüzgar

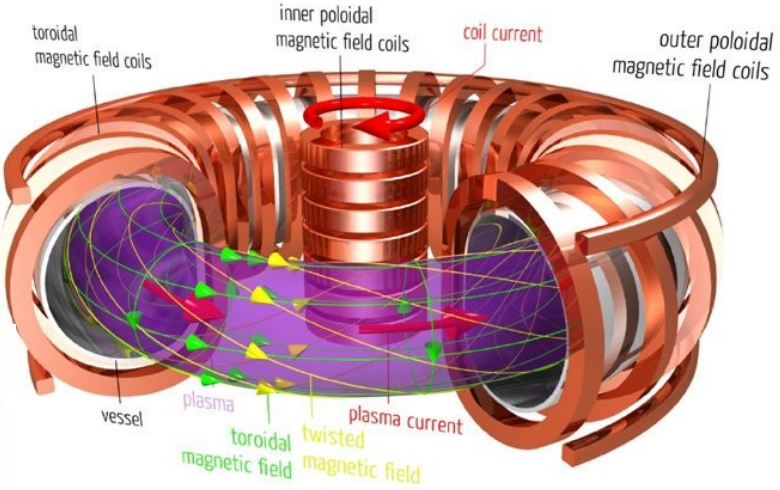
- Rüzgar ≈ süpürülen alan*yoğunluk*hız^3

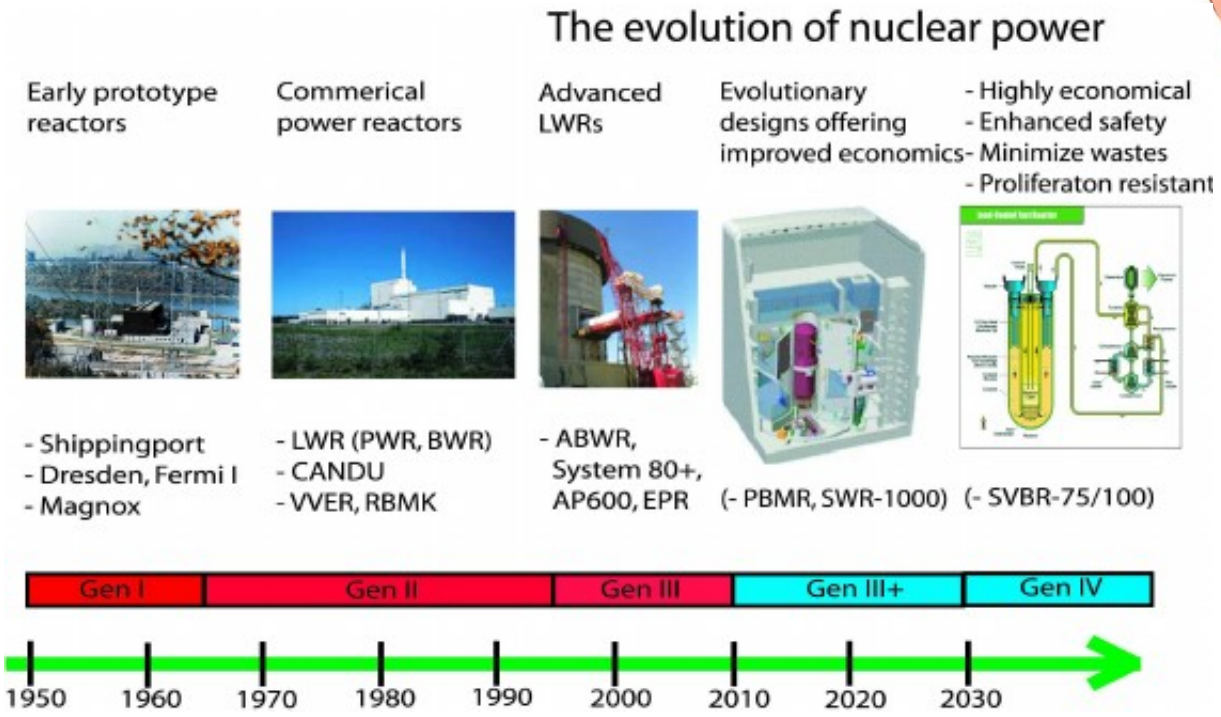


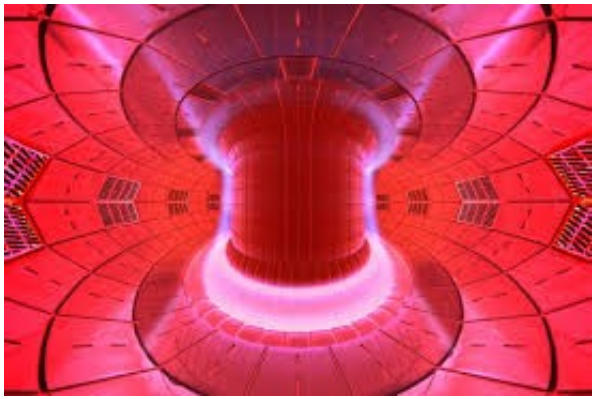
Hidro

Nükleer

- Füzyon
- Fisyon







Sorular ?