



Logística para la transportación de energéticos

Gas, petróleo y energías renovables

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No renovables:

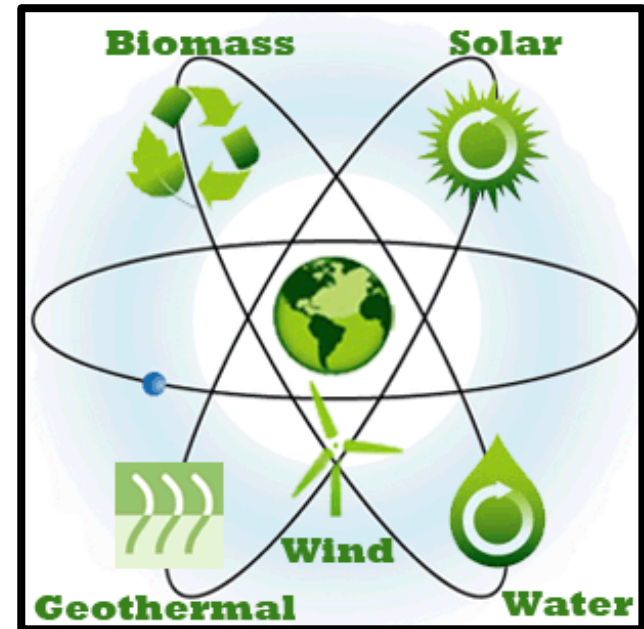
- **Petróleo**
- **Gas Natural**
- **Carbón**
- **Energía nuclear**



Tipos de energéticos

Renovables:

- **Hidráulica/Marina**
- **Solar**
- **Biomasa**
- **Eólica**
- **Geotérmica**



Sources:
<http://greenplanetethics.com/wordpress/renewable-and-non-renewable-energy-sources-explained/>

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Energía no renovable



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Non-renewable energy

What are non-renewable sources of energy?

- Most of the UK's electricity is generated by power stations that burn coal and gas.
- Our cars use petrol and diesel, which come from oil.

What are fossil fuels?

- Coal, oil and gas are called fossil fuels.
- They are formed from the fossilised remains of prehistoric plants.
- The plants became buried deep under the land and sea, slowly turning into coal, oil and gas over millions of years.

What's the problem?

- Fossil fuels can't be renewed.
- One day, the Earth's reserves of these fuels will run out.
- Scientists think that gases released when fossil fuels burn are causing climate change and pollution.

Coal

At a coal mine, shafts are dug to reach layers of coal deep below the Earth's surface or from open-cast mines on the surface.

Oil and gas

Oil and gas under the sea is collected by special platforms. Oil and gas can be burned to make electricity.

Electricity

Electricity is needed to make lots of things work, e.g. heating, lighting. Tall pylons support cables that carry electricity safely to where it's needed. The cables may also run underground.

Power stations

Electricity is made in big buildings called power stations. They burn coal or oil to make power. Some power stations produce electricity from nuclear energy.

It's Only Natural
See www.dti.gov.uk/renewables/school

Source:
<http://greenplanetethics.com/wordpress/renewable-and-non-renewable-energy-sources-explained/>

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Renewable energy



What is renewable energy?

- Renewable energy comes from sources that won't run out, including:
 - the wind
 - the sun
 - the waves and tides
 - natural underground heat
 - energy crops, wood and waste.
- We can use renewable energy to provide electricity and heat for homes and businesses.

Why do we need renewable energy?

- Most of the electricity we use in the UK comes from non-renewable sources, such as coal and gas.
- These 'fossil fuels' are running out.
- Burning them to provide energy also releases gases that contribute to climate change.
- Renewable sources of energy don't run out or pollute the environment.

Why don't we get all our electricity from renewable energy?

- It is important to have a mix of energy sources so, if one fails, another can be used. Also, many renewable technologies are still being developed.

Wind energy

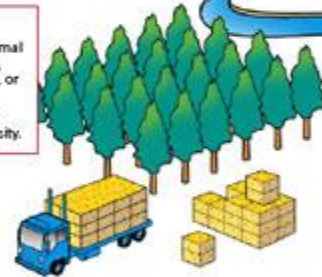
Giant machines, called wind turbines, can be used to make electricity in windy places. Groups of wind turbines – or wind farms – are being built on land and out at sea.

Hydroelectric energy

Hydroelectric energy means energy from moving water. Water flowing from a reservoir to a river through a hydroelectric dam can be used to make power.

Biomass energy

Biomass is plant and animal matter (e.g. wood, straw, sewage and waste food), or trees grown for fuel. We can burn biomass to produce heat and electricity.



Solar energy

Solar energy means energy from the sun. The sun's light and heat can be captured by solar panels and turned into electricity or used to heat water.



Hydrogen fuel cells

Hydrogen fuel cells make 'clean' electricity from hydrogen gas. They work like batteries, and can power cars or buses.



Geothermal energy

Geothermal energy means the natural heat of the Earth. Geothermal power stations use heat from deep underground to generate electricity.



Tidal energy

Every day, the tide at the seaside goes in and out, as the sea rises and falls. Marine turbines can use this movement to generate electric power.



Wave energy

Waves are made when wind blows across the sea. The energy in waves can be used to make electricity by new technology such as the Pelamis wave machine.



It's Only Natural

See www.dti.gov.uk/renewables/schools

Source:
<http://greenplanetethics.com/wordpress/renewable-and-non-renewable-energy-sources-explained/>

Fuentes alternativas de energía



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Source:

https://www.youtube.com/watch?v=-1E1howgtgA&feature=player_embedded

3'44

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Transportación de hidrocarburos

Transportación de hidrocarburos en los Estados Unidos:

70% por oleoductos o gaseoductos

190,000 millas de oleoductos

300,000 millas de gasoductos

23% por vías fluviales (buque-tanques)

4% por vías terrestres (pipas)

3% por vías férreas



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Source:

<http://www.oilandgastransportationusa.com/>

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Gaseoductos y Oleoductos



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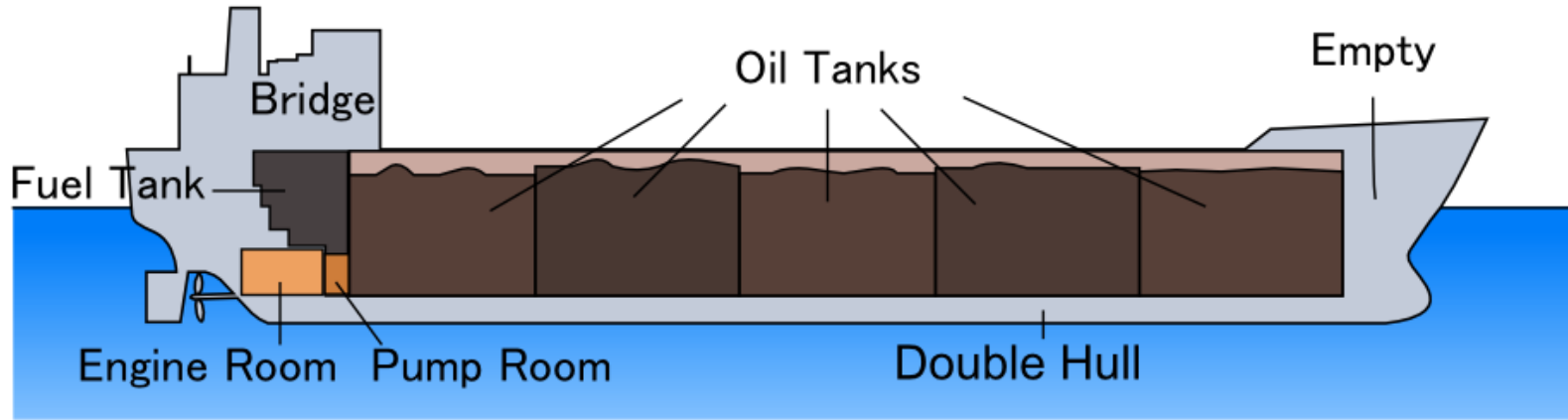
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Source:
<http://www.oilandgasrtransportationusa.com/>

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Buquetanques



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Sources:

<http://www.largestships.com/biggest-oil-tankers/>

<http://www.bing.com/images/search?q=oil%20tankers&qs=n&for m=QBIRMH&pq=oil%20tankers&sc=8-11&sp=-1&sk=#view=detail&id=5691477D D970EAEFAACDE0BB1113D4E3AA 494141&selectedIndex=20>

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Vagones Pipa de Ferrocarril



Sources:
<https://warriorpublications.wordpress.com/2014/12/29/in-north-dakota-a-tale-of-oil-corruption-and-death/>

<http://sanfrancisco.cbslocal.com/2014/03/20/california-may-not-be-prepared-for-disasters-involving-fracked-oil-trains/>

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Pipas para transportación terrestre



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Source:

http://truckfax.blogspot.com/2012_04_01_archive.html

Source:

<http://tytal-usa.com/wp-content/uploads/2012/06/crude-oil-250bbl-02.jpg>

© Mac Mackay photo

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Peligros del transporte de hidrocarburos

Por muertes y destrucción de propiedades:

Trailer *peor que* Ferrocarril *peor que* Oleoducto *peor que* Barco.

Por cantidad de hidrocarburos que se riegan:

Trailer *peor que* Oleoducto *peor que* Ferrocarril *peor que* Barco.

Por el impacto al medio ambiente:

Barco *peor que* Oleoducto *peor que* Trailer *peor que* Ferrocarril.

Peor

Mejor

Sources:
<http://www.forbes.com/sites/jamesconca/2014/04/26/pick-your-poison-for-crude-pipeline-rail-truck-or-boat/>

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Ejemplo del costo de transporte por barco.



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Source	Discharge	Cargo	Cargo Size, Thousand Barrels	Worldscale Rate	Freight Costs, \$/B
Caribbean	New York	Distillate	200	215	2.46
Caribbean	Houston	RFO	380	70	0.90
Caribbean	Houston	RFO	500	73	0.94
N. Europe	New York	Distillate	200	158	2.91
N. Europe	Houston	Crude Oil	400	82	2.22
West Africa	N. Europe	Crude Oil	910	71	1.60
West Africa	Houston	Crude Oil	910	74	2.27
Persian Gulf	Houston	Crude Oil	1,900	36	2.08
Persian Gulf	Japan	Crude Oil	1,750	48	1.61
Persian Gulf	N. Europe	Crude Oil	1,900	36	1.51

Source:
Petro Strategies, Inc.

http://www.petrostrategies.org/Learning_Center/oil_transportation.htm#Shipping_Costs

[Source: Average data for February 2009 as published in the *Oil & Gas Journal* from Drewry Shipping Consultants Ltd.]

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Anteriores Gaseoductos en México



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Source:
http://www.geografiainfo.es/tuberias/mapa_tuberias_mexico.html

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Nuevos Gaseoductos en México

REFORMA DETONA RED DE GASODUCTOS EN EL PAÍS

La reforma energética abrió la oportunidad de construcción de nuevos proyectos de más de 25,000 kilómetros de gasoductos en el país y almacenamiento de gas natural, los que construirán la Comisión Federal de Electricidad (CFE) y la Iniciativa Privada, cuya inversión sería de 23,000 millones de dólares en cinco años y los que estarían vinculados a 27 nuevas centrales eléctricas en el país.



GRÁFICO EE



Source:
http://eleconomista.com.mx/files/imagecache/infografia_notacompleta/epp_ductos_030214.jpg

Ejemplos de la magnitud de la industria



El buquetanque más grande del mundo



La plataforma marina móvil más grande del mundo



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Sources:

<http://www.unp.me/f44/world-s-biggest-super-tank-ship-knock-nevis-104873/>

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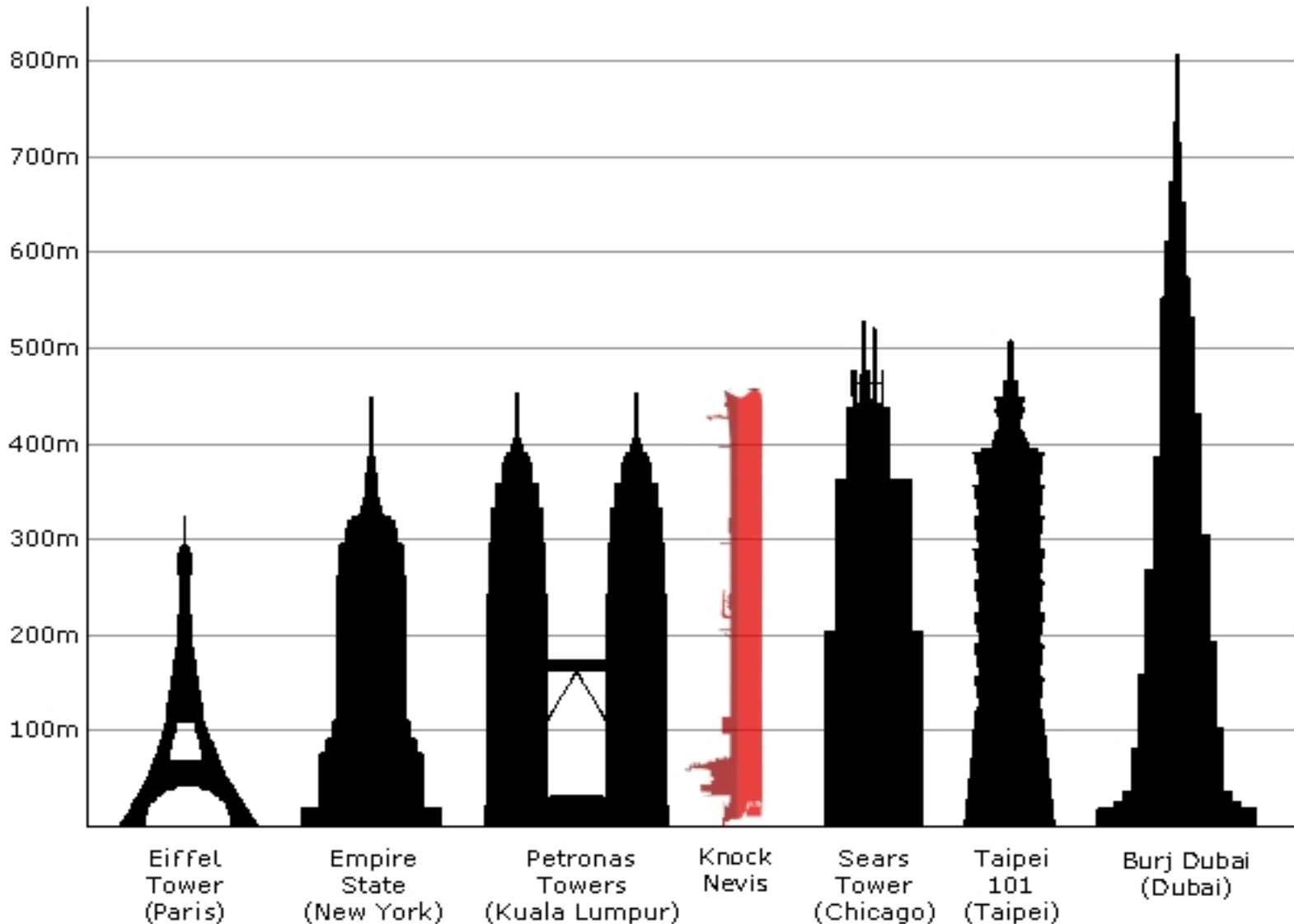
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El buquetanque más grande del mundo



Oil tanker
458 m (1503 ft)



Container ship
399 m (1309 ft)



Bulk carrier
362 m (1188 ft)



Passenger ship
360 m (1181 ft)



Aircraft carrier
341 m (1119 ft)



Sources:
<http://www.unp.me/f44/world-s-biggest-super-tank-ship-knock-nevis-104873/>

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El buquetanque más grande del mundo

- El ***Knock Nevis***, antes llamado *Seawise Giant*, *Happy Giant* y *Jahre Viking*, fue un superpetrolero construido entre 1979 y 1981, en los astilleros de Oppama (Japón).
- Con **458 metros de eslora y 69 metros de manga**, *era el barco más grande del mundo*, y el que, a su vez, poseía el mayor tonelaje de registro (TRB) bruto hasta la fecha.
- No podía atravesar el Canal de la Mancha, el Canal de Suez o el Canal de Panamá.
- De manera general, se consideró como el mayor buque jamás construido y el mayor objeto móvil realizado por el hombre.
- Su último destino fue como almacén flotante y descarga Off-Shore (FSO), fondeado en la costa de Qatar (Golfo Pérsico), en el campo petrolífero Al Shaheen.
- Fue varado intencionadamente en Alang, Gujarat, India, para su desmantelamiento.

Sources:
http://es.wikipedia.org/wiki/Knock_Nevis

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La plataforma flotante más grande del mundo



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MEET PRELUDE FLNG

THE WORLD'S LARGEST FLOATING LIQUEFIED NATURAL GAS FACILITY

STORAGE
EQUAL TO
175
OLYMPIC
SIZED SWIMMING
POOLS



6,700
HORSEPOWER
THRUSTERS USED
TO POSITION
← FACILITY →

FACILITY'S DECK LONGER THAN
4 FOOTBALL
FIELDS
← LAID END TO END →

WATER DISPLACEMENT EQUAL TO
6 LARGE-SIZED
AIRCRAFT CARRIERS

Sources:
<http://www.largestships.com/p/relude-flng-project/>

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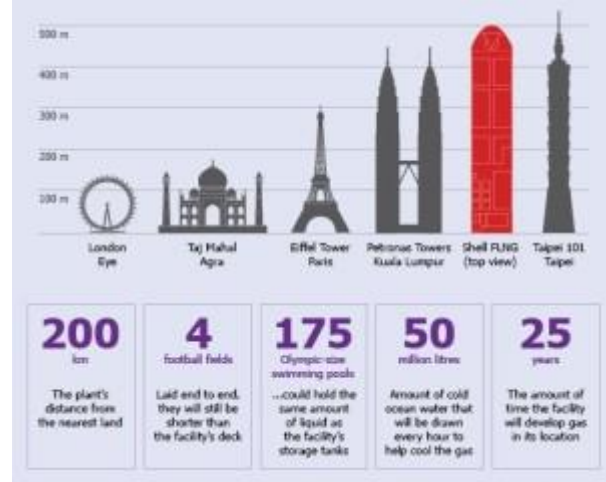
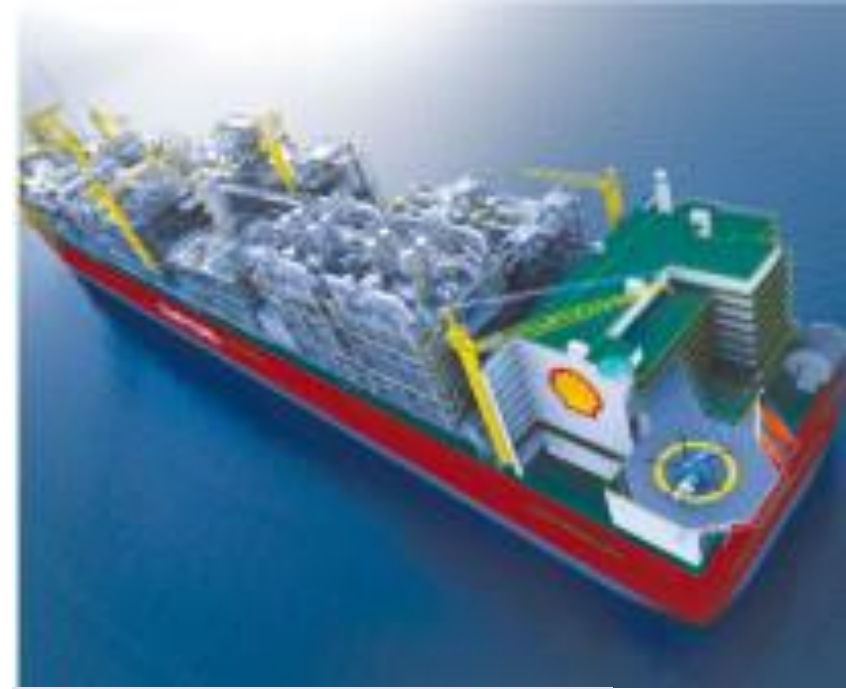
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- **Shell Prelude FLNG** es una plataforma para la extracción, procesamiento, almacenamiento y manejo de gas natural, desarrollada por Royal Dutch Shell.
- Con **488 metros de eslora y 74 metros de manga**, es ahora **buque más grande jamás construido**. Para su construcción se utilizarán más de 260 000 toneladas de acero.
- En operación, podría llegar a pesar más de 600 000 toneladas; más de cinco veces el peso del portaaviones más grande
- El sistema está diseñado para soportar ciclones de categoría 5.
- El sistema del *Prelude* será usado en los campos de gas a 200 km de la costa australiana; se espera que la perforación comience en 2017, con una esperanza de vida prevista de 25 años.



Sources:
<http://www.largest-ships.com/prelude-flng-project/>

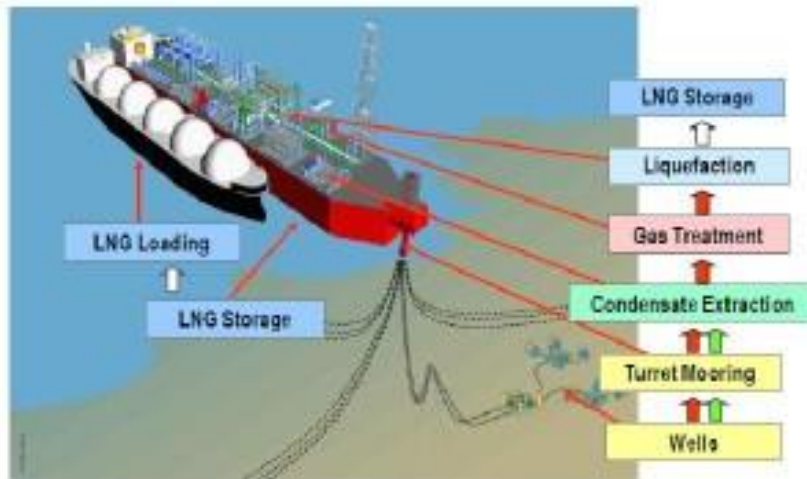
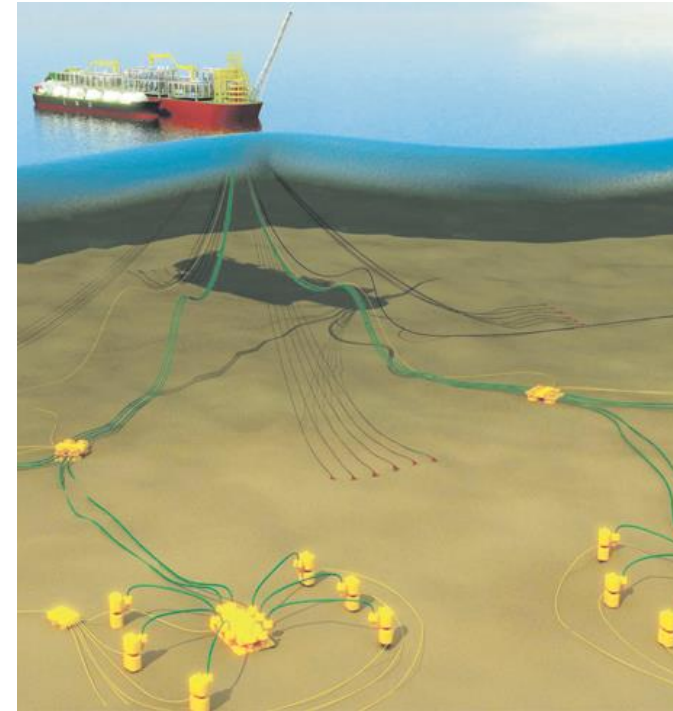
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Sources:
http://es.wikipedia.org/wiki/Prelude_FLNG



La plataforma flotante más grande del mundo

Shell Prelude FLNG



Expandiendo los límites de la industria petrolera.

3'23



Sources:
<http://www.largestships.com/p/shell-prelude-flng-project/>

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¿De qué les sirve todo esto?

¿Qué se espera de ustedes?

¿Cómo deben encarar el futuro?

¿Qué les ofrece TAMIU?



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¡Muchas gracias y mucho éxito!

Para mayor información, favor de contactar:

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