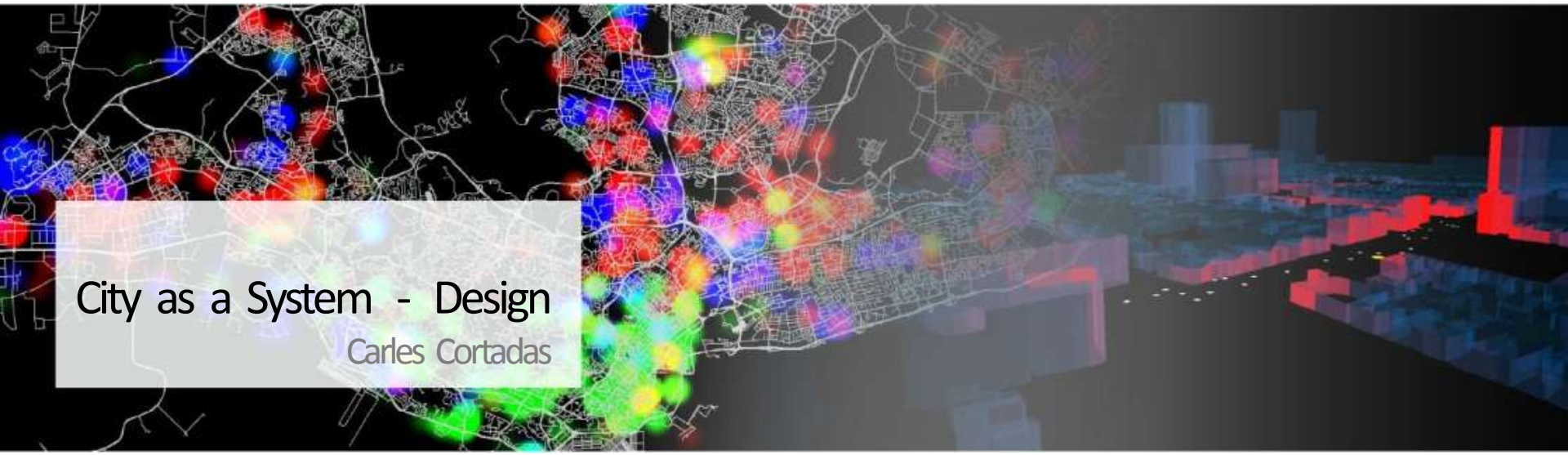
barcelona consulting

Information Architecture and Future Cities



barcelona consulting

How the infrastructures can influence the design of the cities:

- Cooling infrastructures
- Data infrastructures

barcelona consulting

Dr. Aleksandar Ivancic

Dr. Eduardo Ferrer

How the infrastructures can influence the design of the cities:

- Cooling infrastructures

Lunch time seminar, November 16, 2012

B

barcelona consulting









architecture

- heritage
- urban planning
- residential
- hotels
- commercial
- culture & leisure
- museography
- structures

engineering

- building facilities
- energy
- telecom
- it infrastructures

B

barcelona consulting

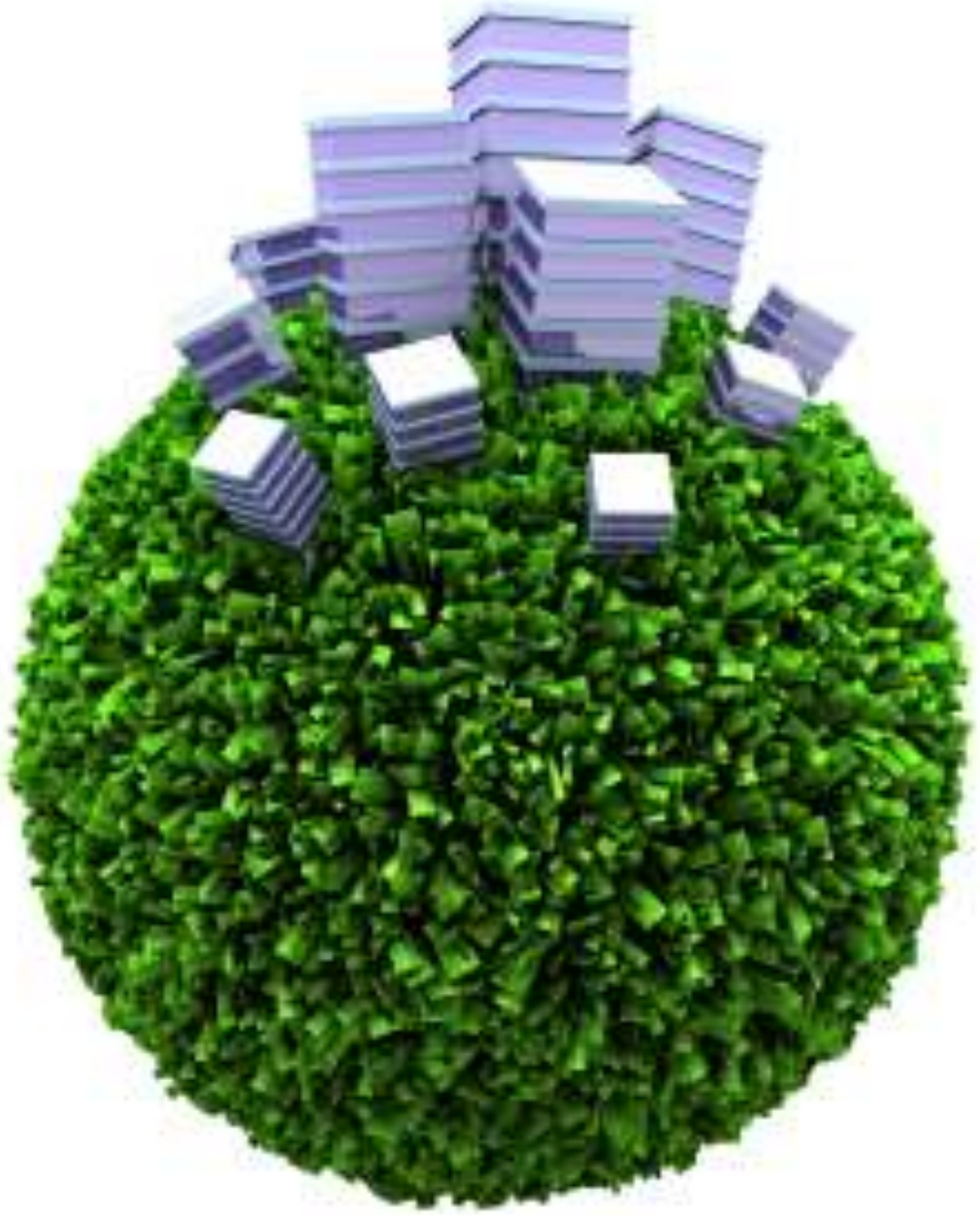
What does it take to  Different?

B green

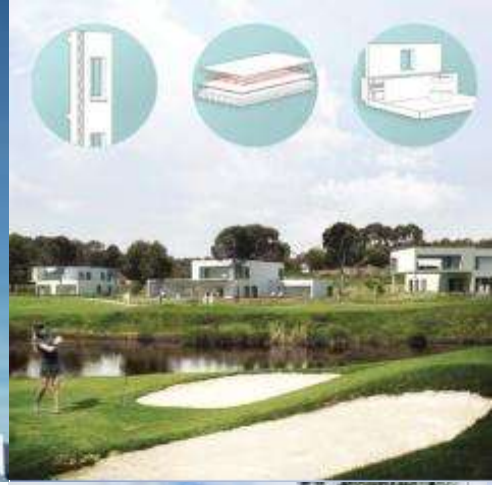
Are you the best sustainable architect

…

In the world?



B green

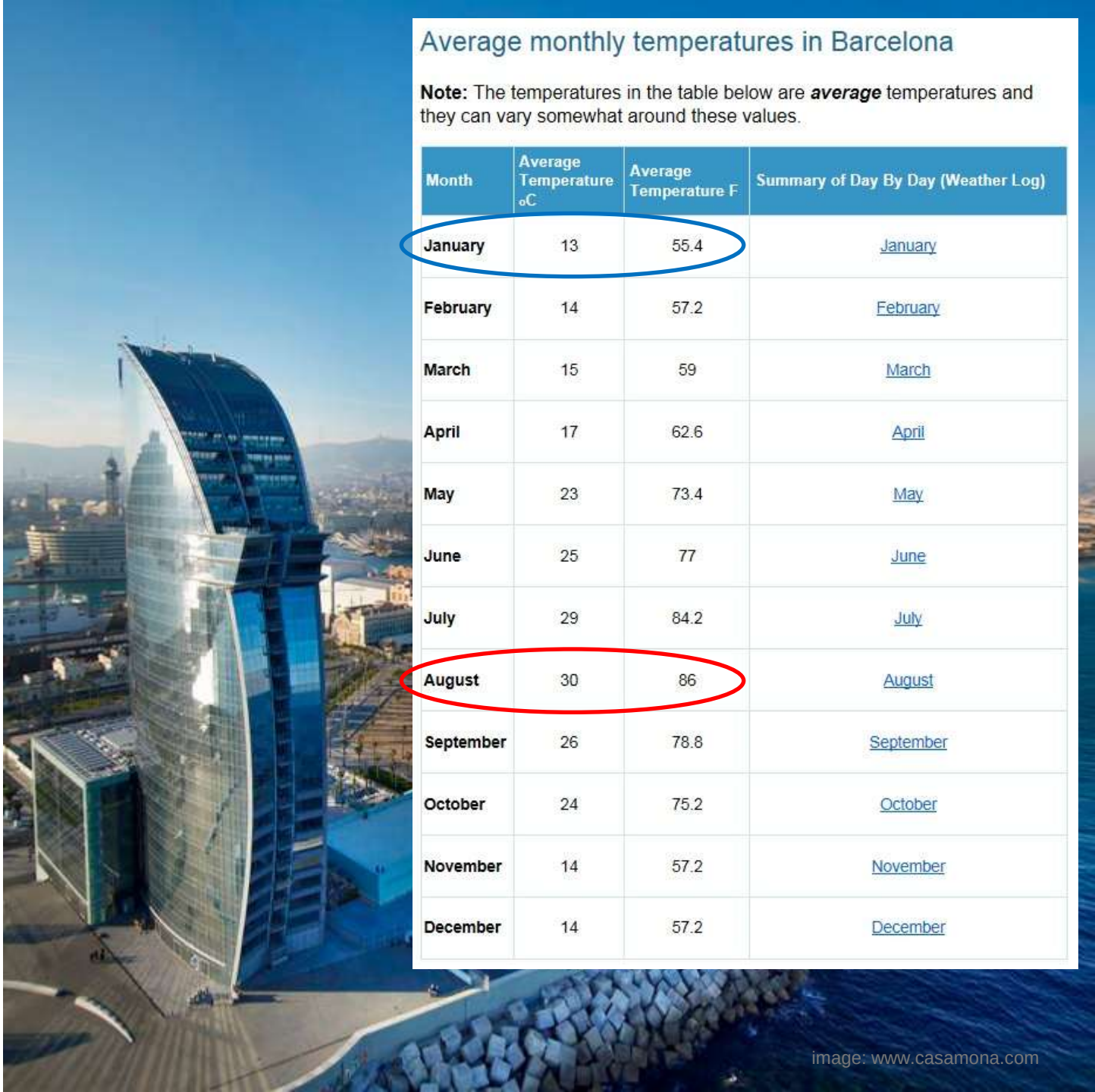


info: B01 arquitectes
BGC arquitectura i enginyeria

B green

Concept Design:
indoor-ski in Barcelona.

¿sustainable?
¿cooling system?



Average monthly temperatures in Barcelona

Note: The temperatures in the table below are ***average*** temperatures and they can vary somewhat around these values.

Month	Average Temperature °C	Average Temperature F	Summary of Day By Day (Weather Log)
January	13	55.4	January
February	14	57.2	February
March	15	59	March
April	17	62.6	April
May	23	73.4	May
June	25	77	June
July	29	84.2	July
August	30	86	August
September	26	78.8	September
October	24	75.2	October
November	14	57.2	November
December	14	57.2	December

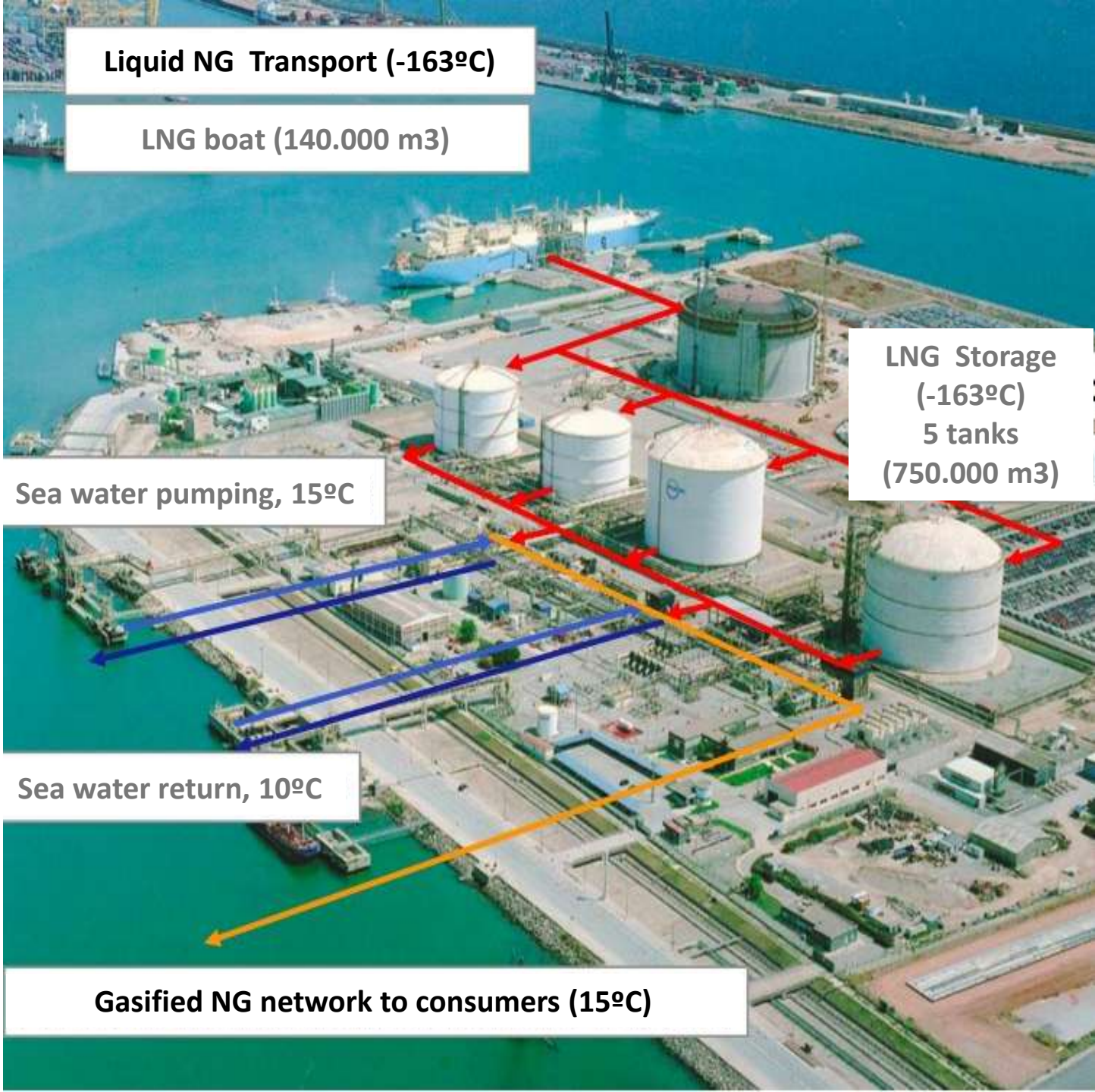
image: www.casamona.com

2007 concept: B01 arquitectes

B green

Concept Design:
indoor-ski in Barcelona.

¿sustainable?
¿cooling system?

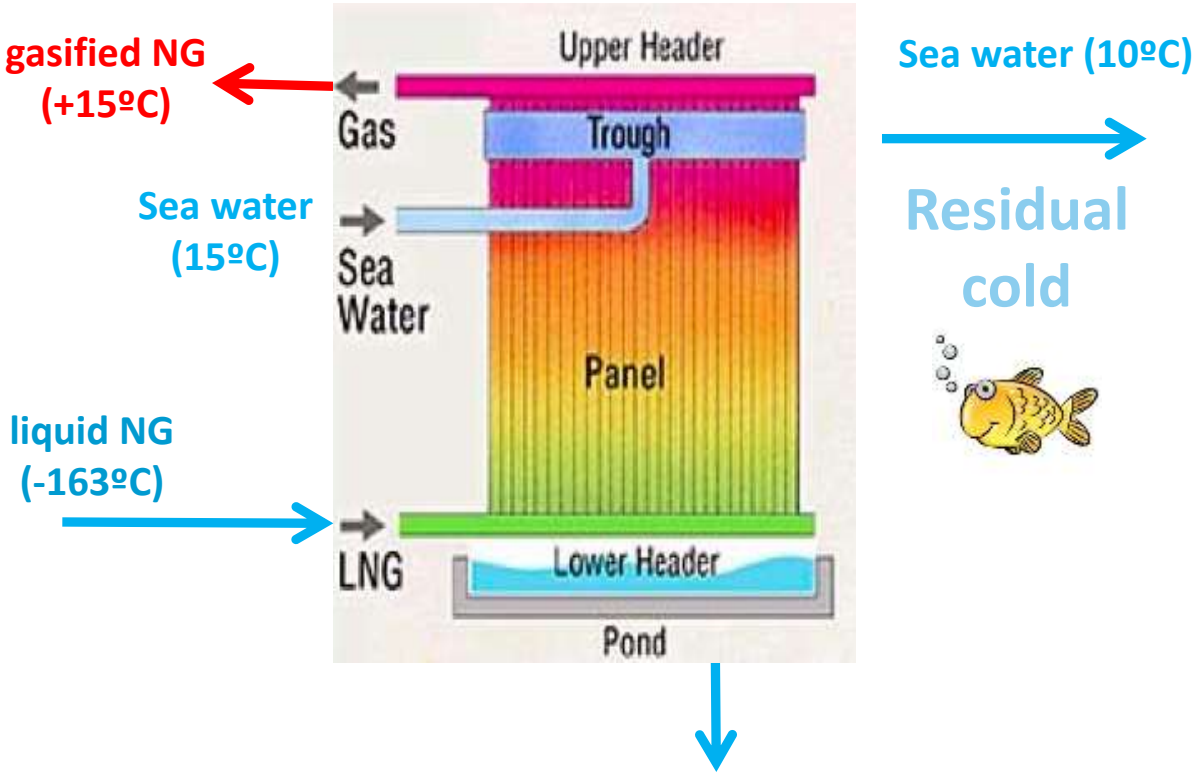


info: Dr. Eduardo Ferrer, DALKIA

B green

Concept Design:
indoor-ski in Barcelona.

¿sustainable?
¿cooling system?

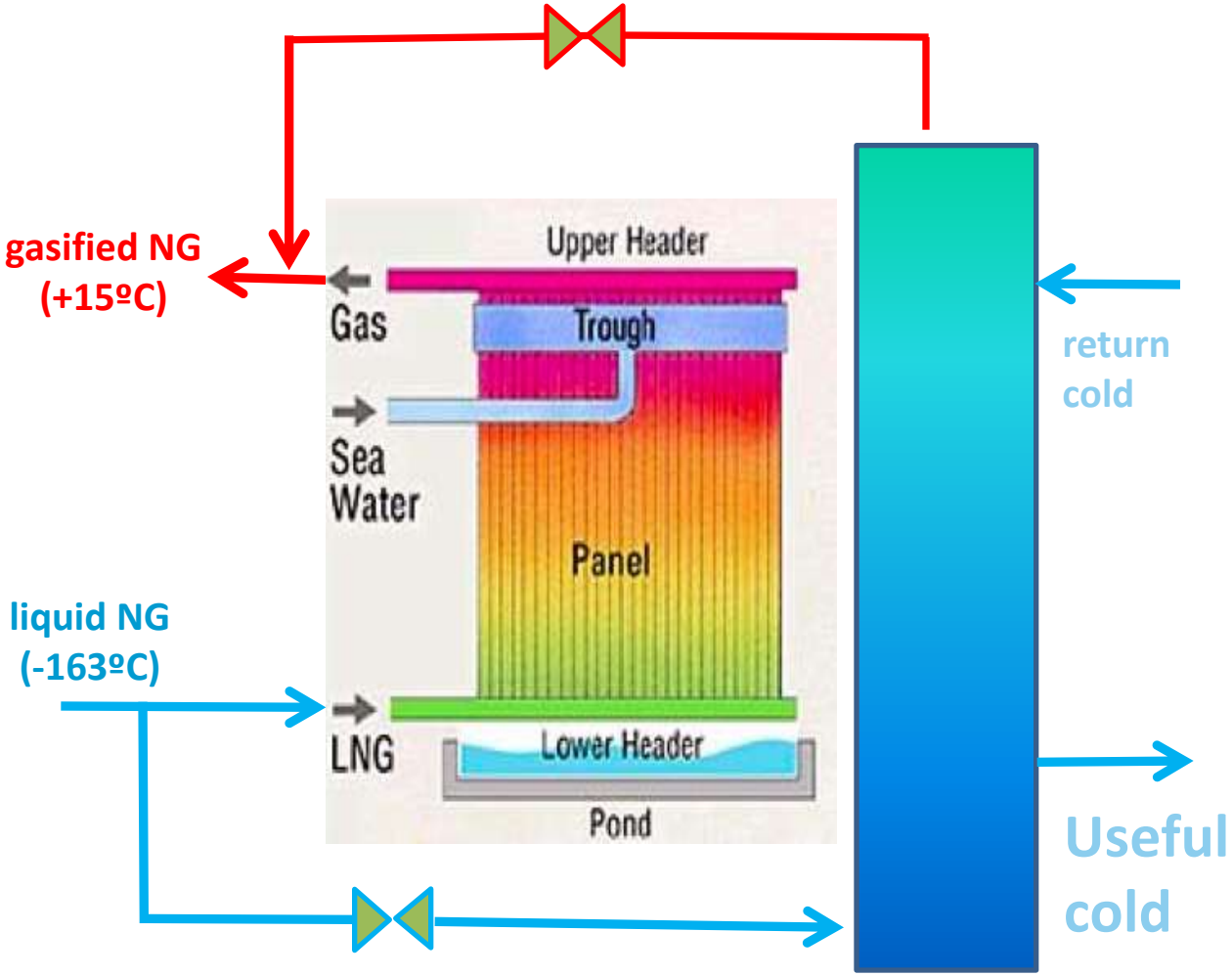


info: Dr. Eduardo Ferrer, DALKIA

B green

Concept Design:
indoor-ski in Barcelona.

¿sustainable?
¿cooling system?



info: Dr. Eduardo Ferrer, DALKIA

B green

Concept Design:
indoor-ski in Barcelona.

¿sustainable?
¿cooling system?

info: B01 arquitectes

B green

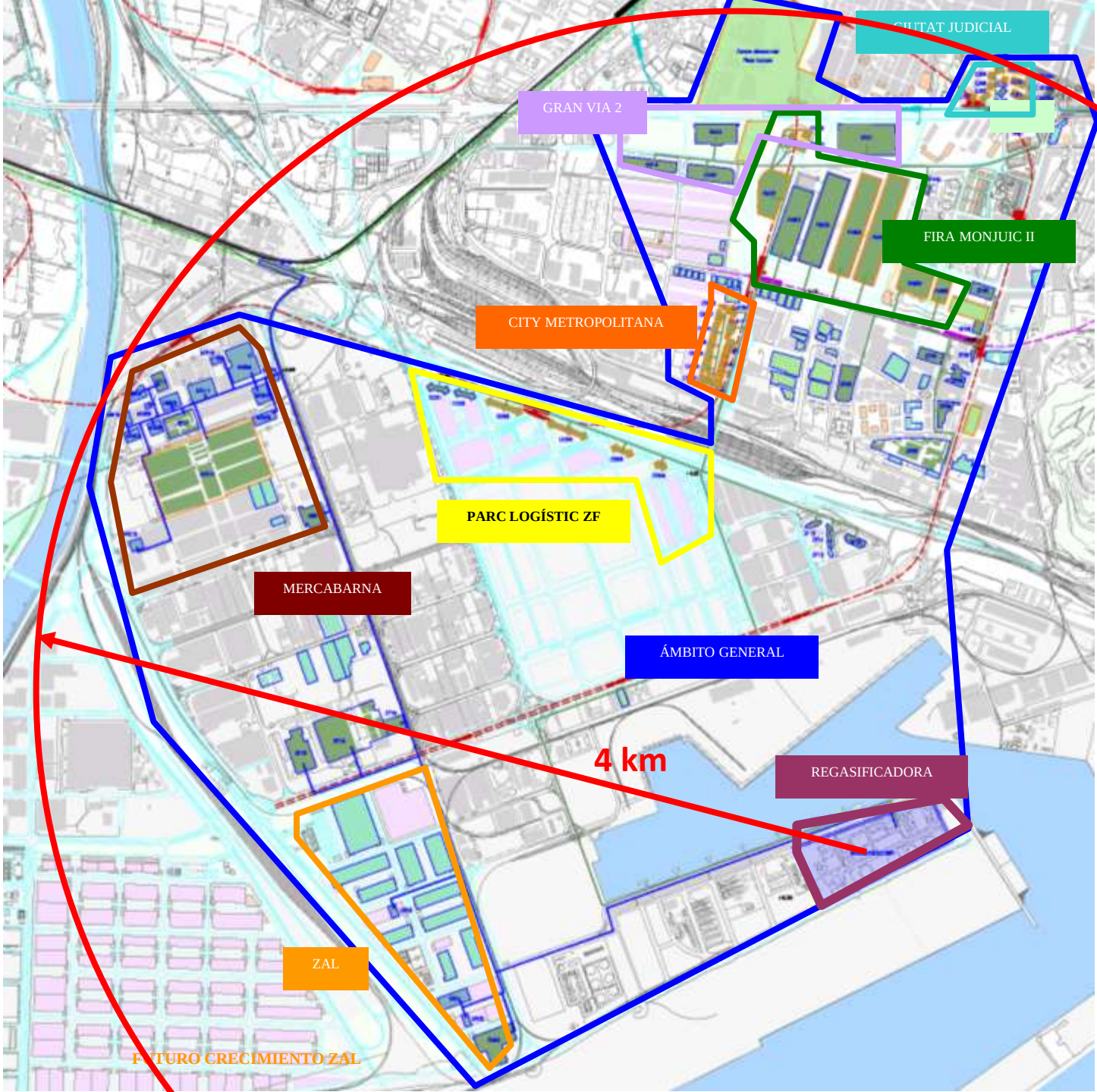
Important:
Free cooling for a district cooling.

DHC Poniente:
ZF, Marina District,
Pl. Europa

The Regassing plant is located in the Barcelona's Harbor.

Within a radius of 4 km there is an industrial area and tertiary sector.

Within this area there are potential consumers of both industrial cooling and of air conditioning, in two differentiated areas.



info: Dr. Alejsandar Ivancic; AIGUASOL

B green

Potential uses of the cooling energy

Important:
Free cooling for a district cooling.

DHC Poniente:
ZF, Marina District,
Pl. Europa

The Regassing plant is located in the Barcelona's Harbor.

Within a radius of 4 km there is an industrial area and tertiary sector.

Within this area there are potential consumers of both industrial cooling and of air conditioning, in two differentiated areas.

In the immediately environment of the Regassing Plant:

- Industrial
- Tertiary

(a huge potential in front of future urban development)

Depending on the temperature of use they are been classified like:

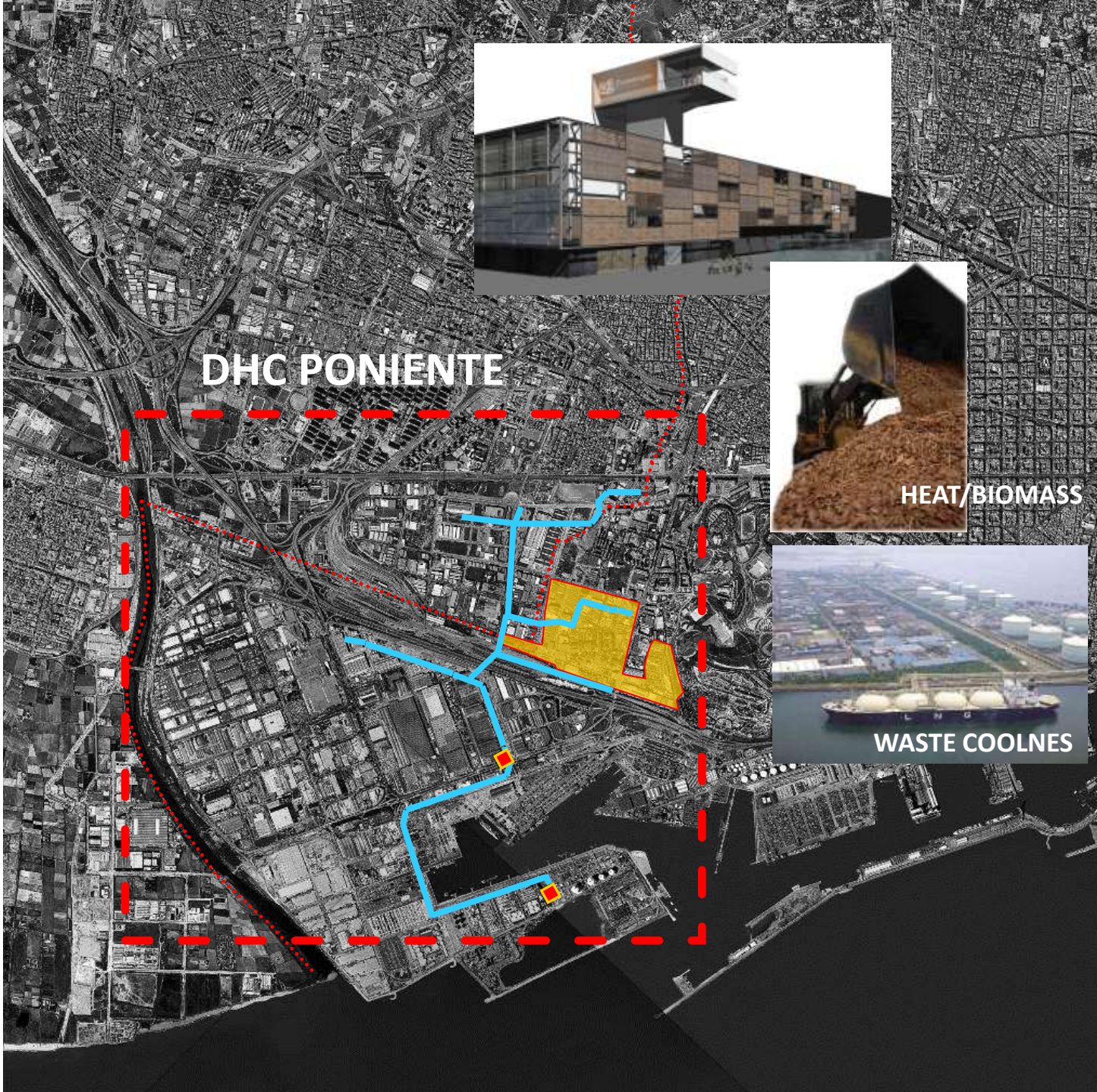
- Refrigeration (+15ºC)
- Air conditioning (+5ºC)
- Conservation (-5ºC)
- Freezing (-30ºC)

info: Dr. Alejsandar Ivancic; AIGUASOL

B green

Important:
Free cooling for a district cooling.

District heating and cooling Central:
Renewable ressources.



info: Dr. Alejsandar Ivancic; AIGUASOL

B green

Important:
Free cooling for a district cooling.

In this area many new and future urban projects have been under planning :

ZF LOGISTIC PARK

ZAL (enlargement)

MONJUICH FAIR II

CITY METROPOLITANA

JUDICIAL CITY

DIRECCIONAL CENTER
EUROPA SQUARE

BUSSINES CENTER
ZONA FRANCA (TETRIS)

FERIAL PORTAL

METRO

85 buildings in the area, that exist or are foreseen.
The total surface of tertiary sector are sector **1.136.167 m²**.
The freezing volume are **364.346 m³**.

info: Dr. Alejsandar Ivancic; AIGUASOL

B

Singapore…

images: B barcelona consulting

B

Singapore…

image: B barcelona consulting

B

Singapore…

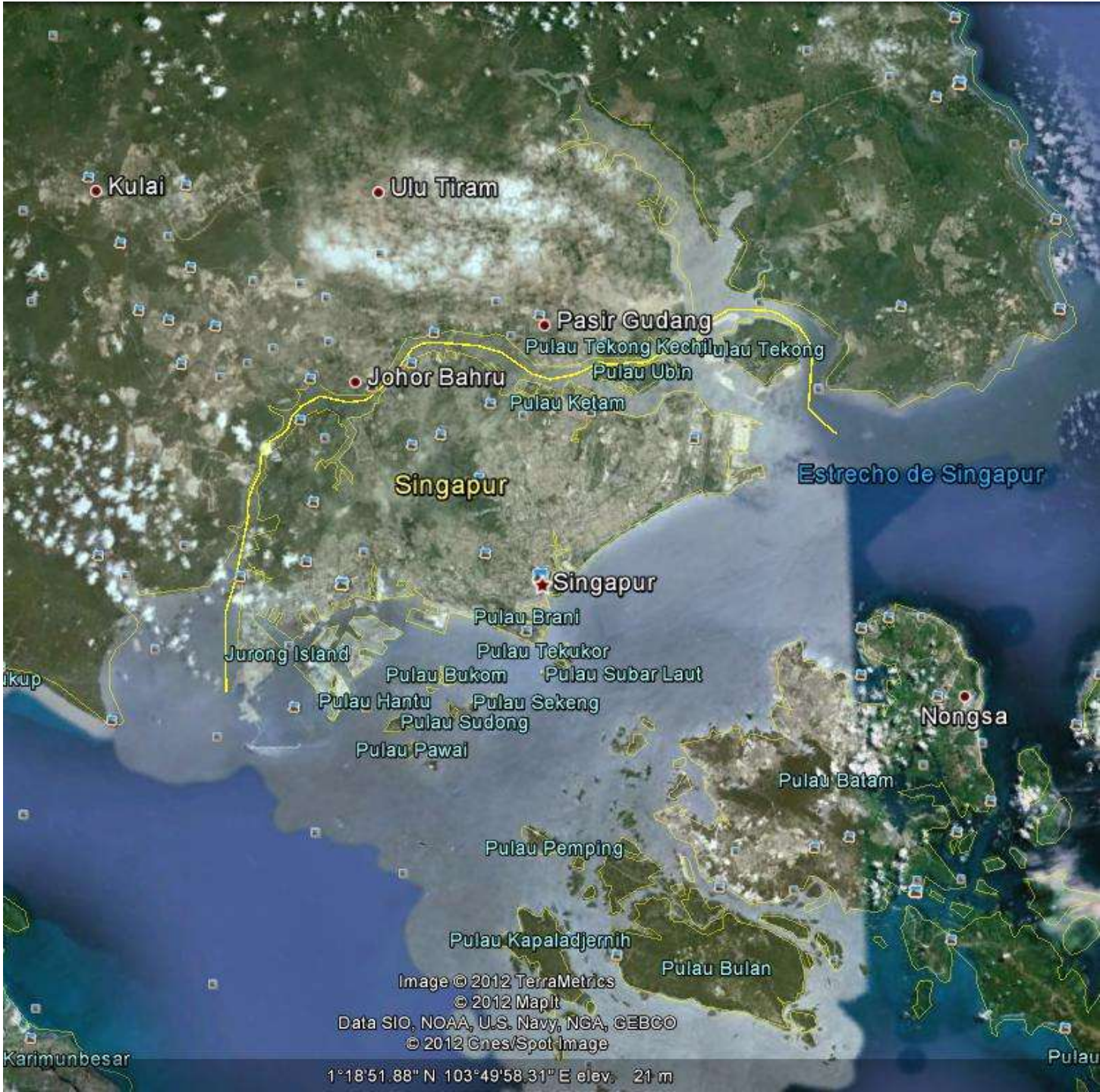


image: google earth

B

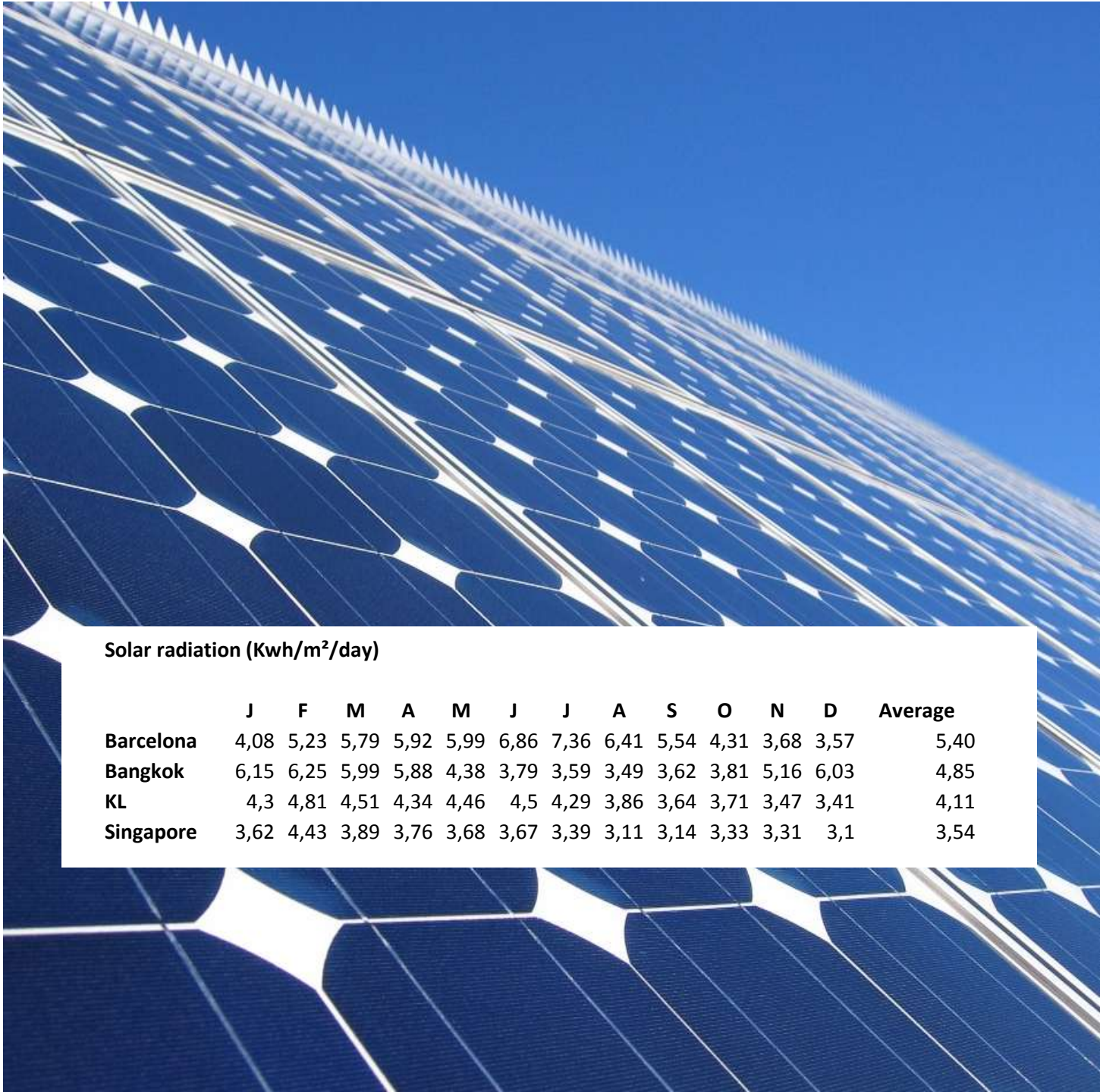
Singapore…

image: google earth

B

Singapore…

SOLAR POWER
3,54 Kwh/m2/day



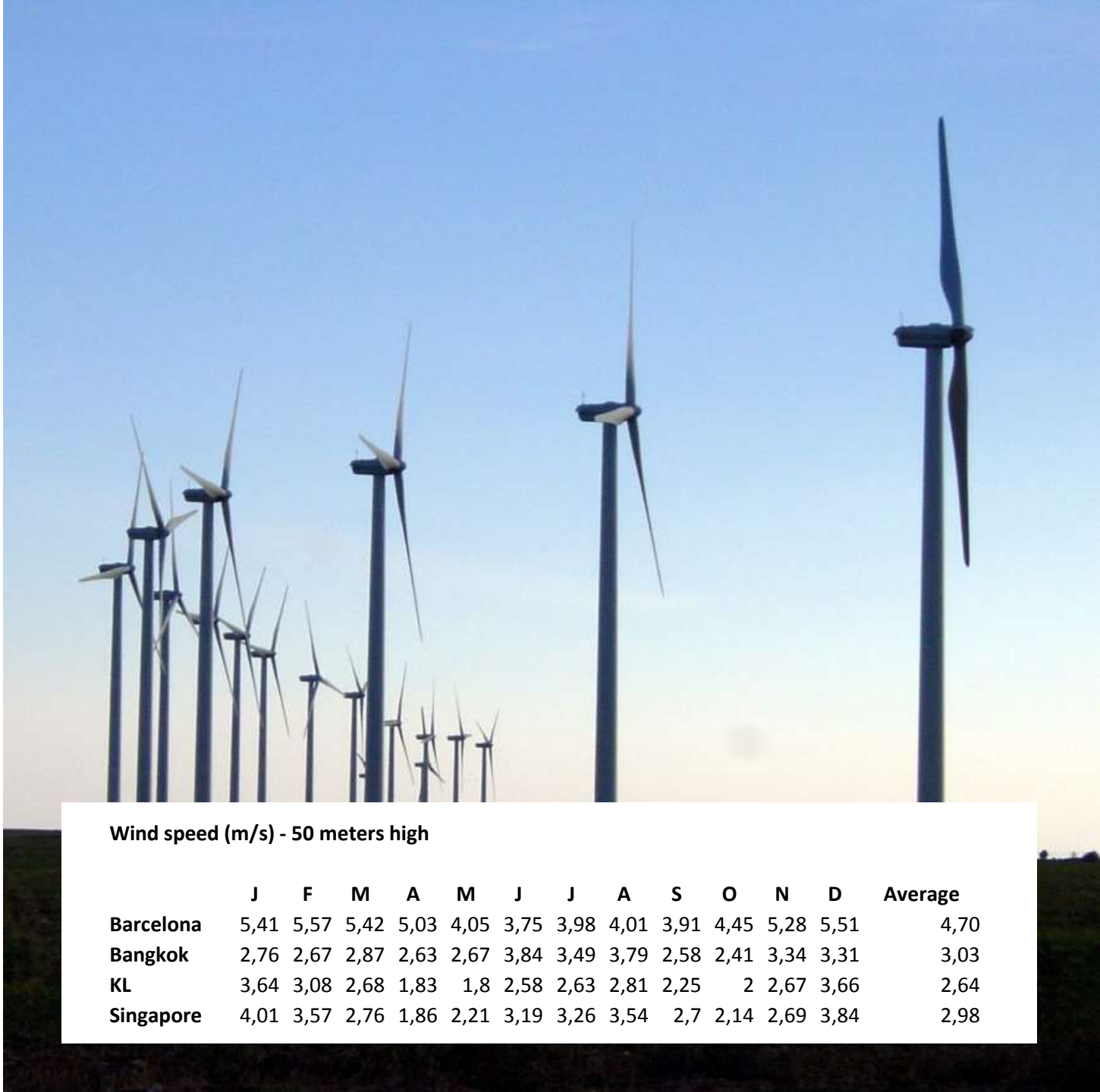
Solar radiation (Kwh/m²/day)

	J	F	M	A	M	J	J	A	S	O	N	D	Average
Barcelona	4,08	5,23	5,79	5,92	5,99	6,86	7,36	6,41	5,54	4,31	3,68	3,57	5,40
Bangkok	6,15	6,25	5,99	5,88	4,38	3,79	3,59	3,49	3,62	3,81	5,16	6,03	4,85
KL	4,3	4,81	4,51	4,34	4,46	4,5	4,29	3,86	3,64	3,71	3,47	3,41	4,11
Singapore	3,62	4,43	3,89	3,76	3,68	3,67	3,39	3,11	3,14	3,33	3,31	3,1	3,54

B

Singapore…

WIND POWER
2,98 m/s



Wind speed (m/s) - 50 meters high

	J	F	M	A	M	J	J	A	S	O	N	D	Average
Barcelona	5,41	5,57	5,42	5,03	4,05	3,75	3,98	4,01	3,91	4,45	5,28	5,51	4,70
Bangkok	2,76	2,67	2,87	2,63	2,67	3,84	3,49	3,79	2,58	2,41	3,34	3,31	3,03
KL	3,64	3,08	2,68	1,83	1,8	2,58	2,63	2,81	2,25	2	2,67	3,66	2,64
Singapore	4,01	3,57	2,76	1,86	2,21	3,19	3,26	3,54	2,7	2,14	2,69	3,84	2,98

B

Singapore

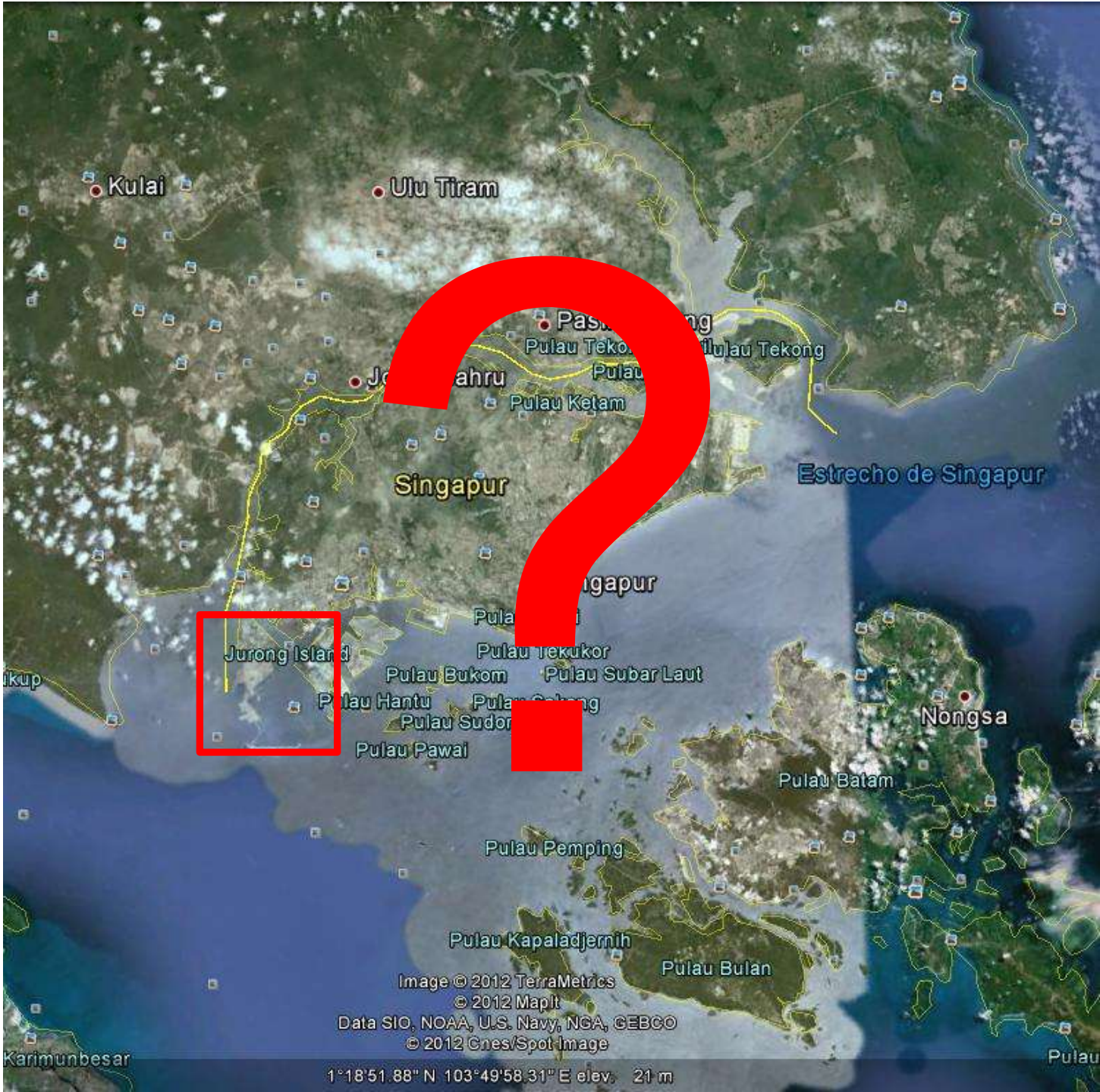


image: google earth

B

Singapore

image: google earth

B

Singapore

image: google earth

image: www.slng.com.sg

B

Singapore

Many factors that can make this idea work or fail, every place has his own solution.

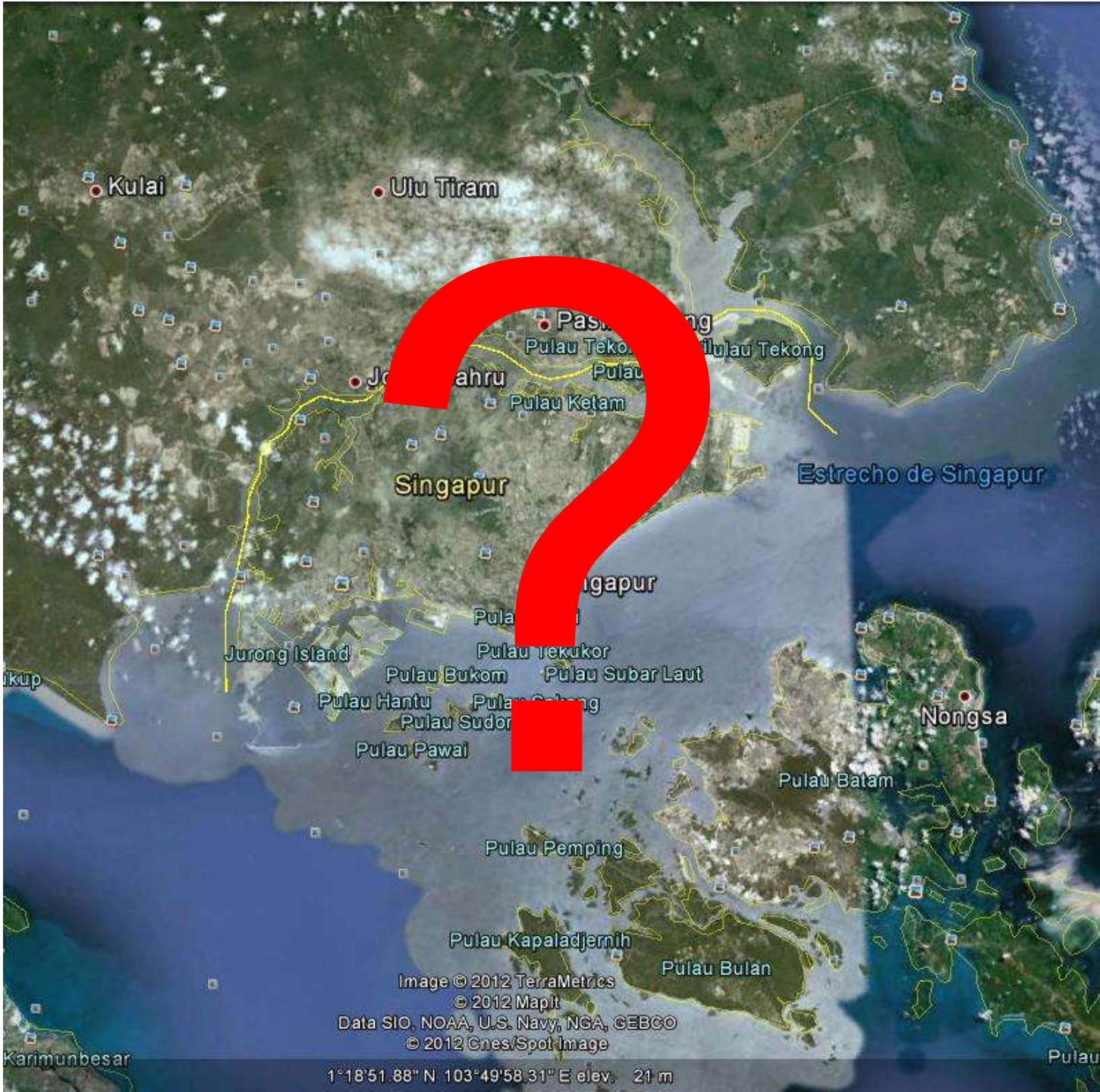
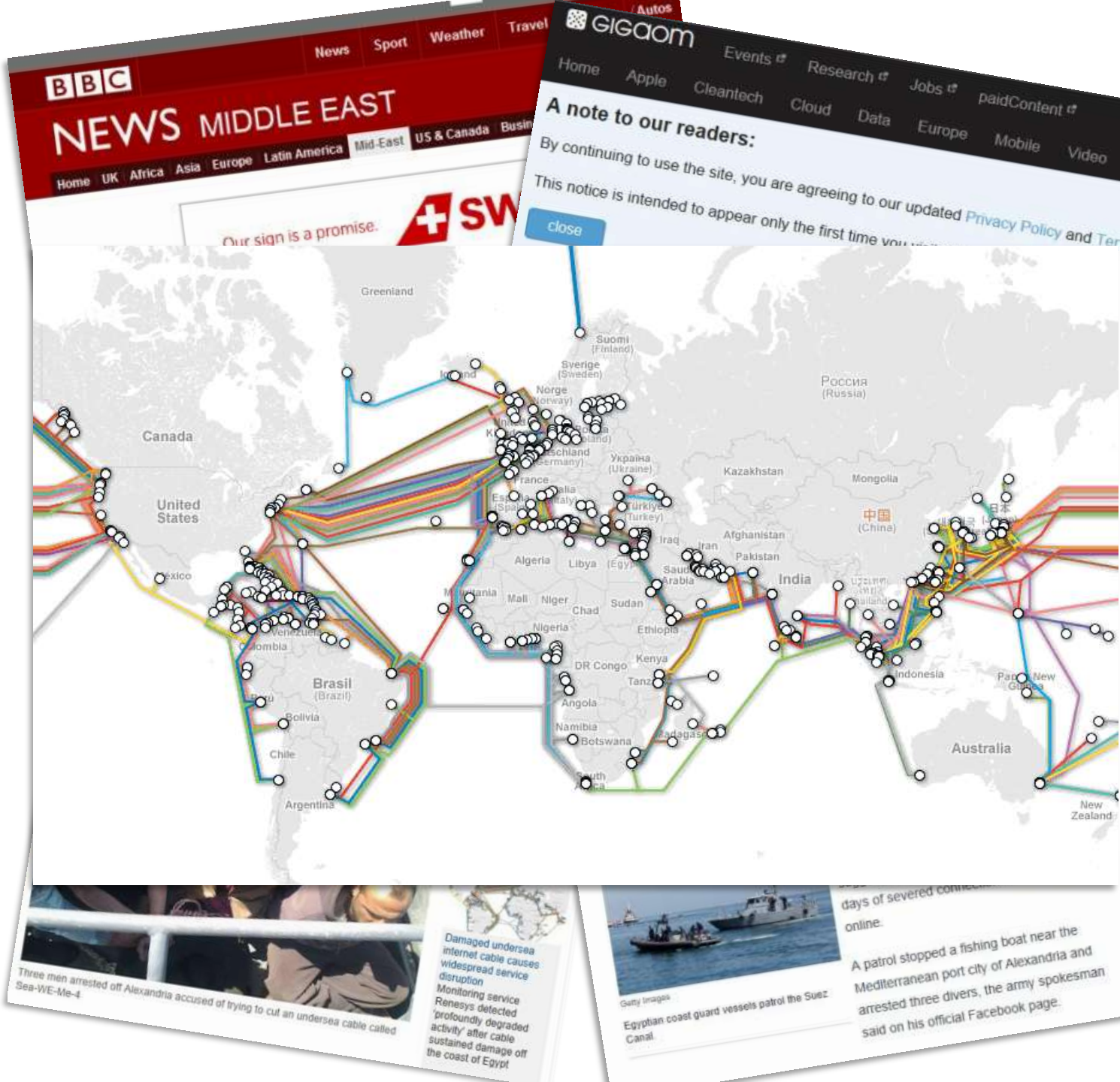


image: google earth

barcelona consulting

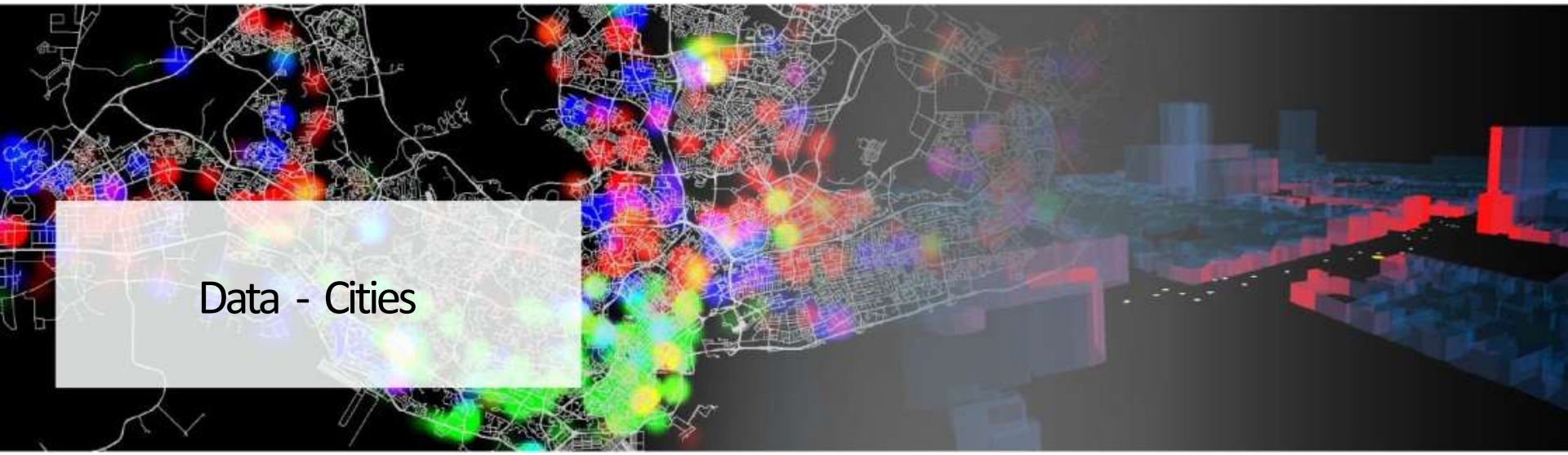
B

barcelona consulting



barcelona consulting

Information Architecture and Future Cities



B data

images:
www.google.com/about/datacenters/gallery

B data

images:
www.google.com/about/datacenters/gallery

B data

images:
www.google.com/about/datacenters/gallery

B data

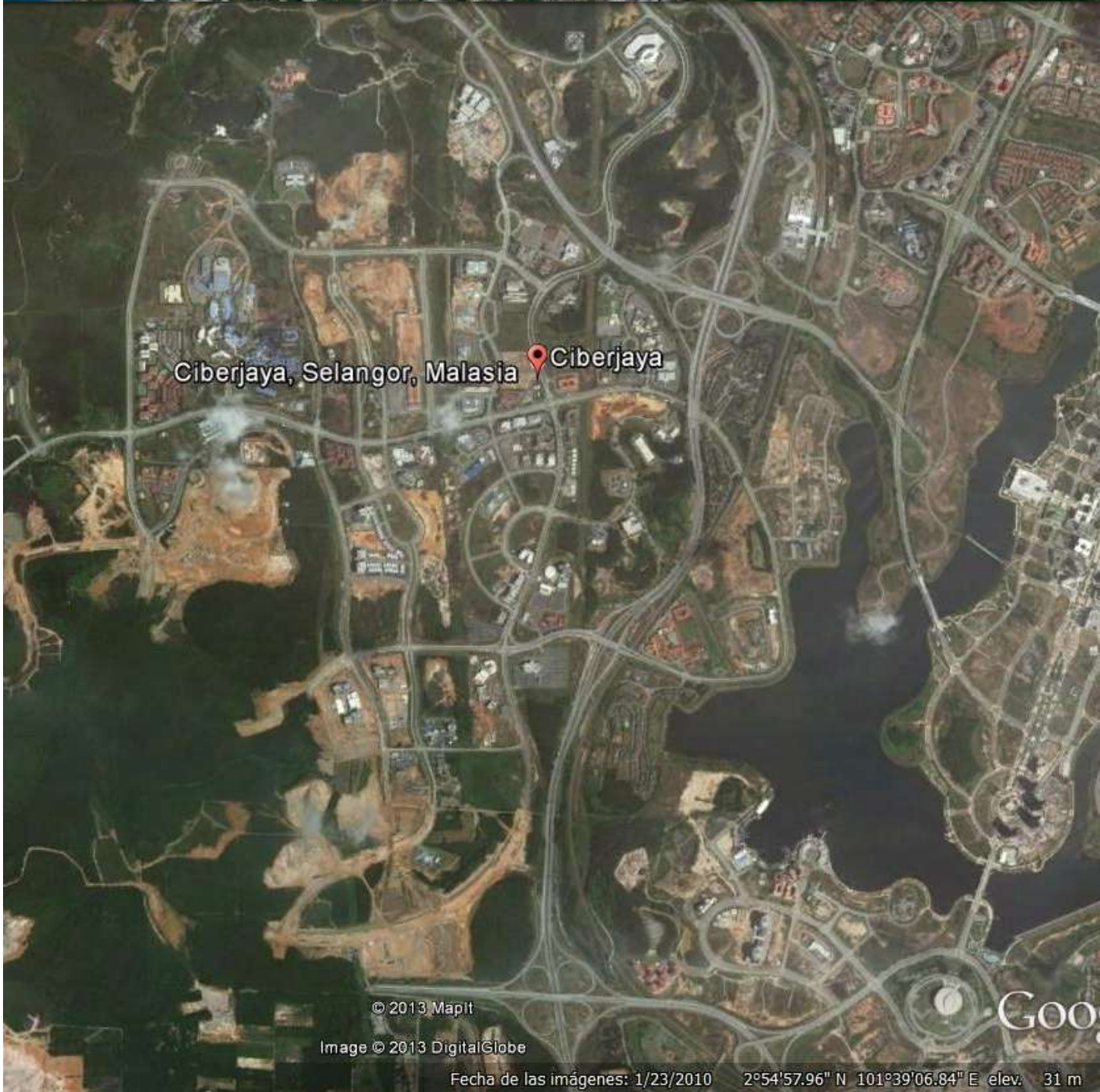


image: google earth

B data

B data

TCC GROUP

Stability in Convergence

Thai Beverage	Berli Jucker	Southeast	TCC Land	Plantheon
Beverages	Industrial Trading & Consumer Products	Insurance & Leasing	Property & Real Estate	Agro Industrial
Alcohol Beverages	Consumer Supply Chain	General Assurance	Residential	Sugar Industry
Non-Alcohol Beverages	Industrial Supply Chain	Life Assurance	Hotels & Hospitality	Plantation & Processing
Oishi Chilled & Frozen Foods	Healthcare Supply Chain	Capital / Leasing	Retail	Fertilizer
Related Business	Technical Supply Chain		Commercial Office Bld.	
International Product	International Business Group		Convention & Exhibition Center	
			Apartment & Serviced Apartment	
			Industrial & Warehouse	
			Master Plan	
*Listed in SGX	*Listed in SET			

B data

TCC LAND

TCC TECHNOLOGY

B data

Conclusions:

We have a concept but we need to ad many other components, as the local understanding, culture...

Add studies as you do in FCL about movement, transport, energies…

And then do the best project for **THIS** place!

It is a good idea but…

There is allways a **BUT**

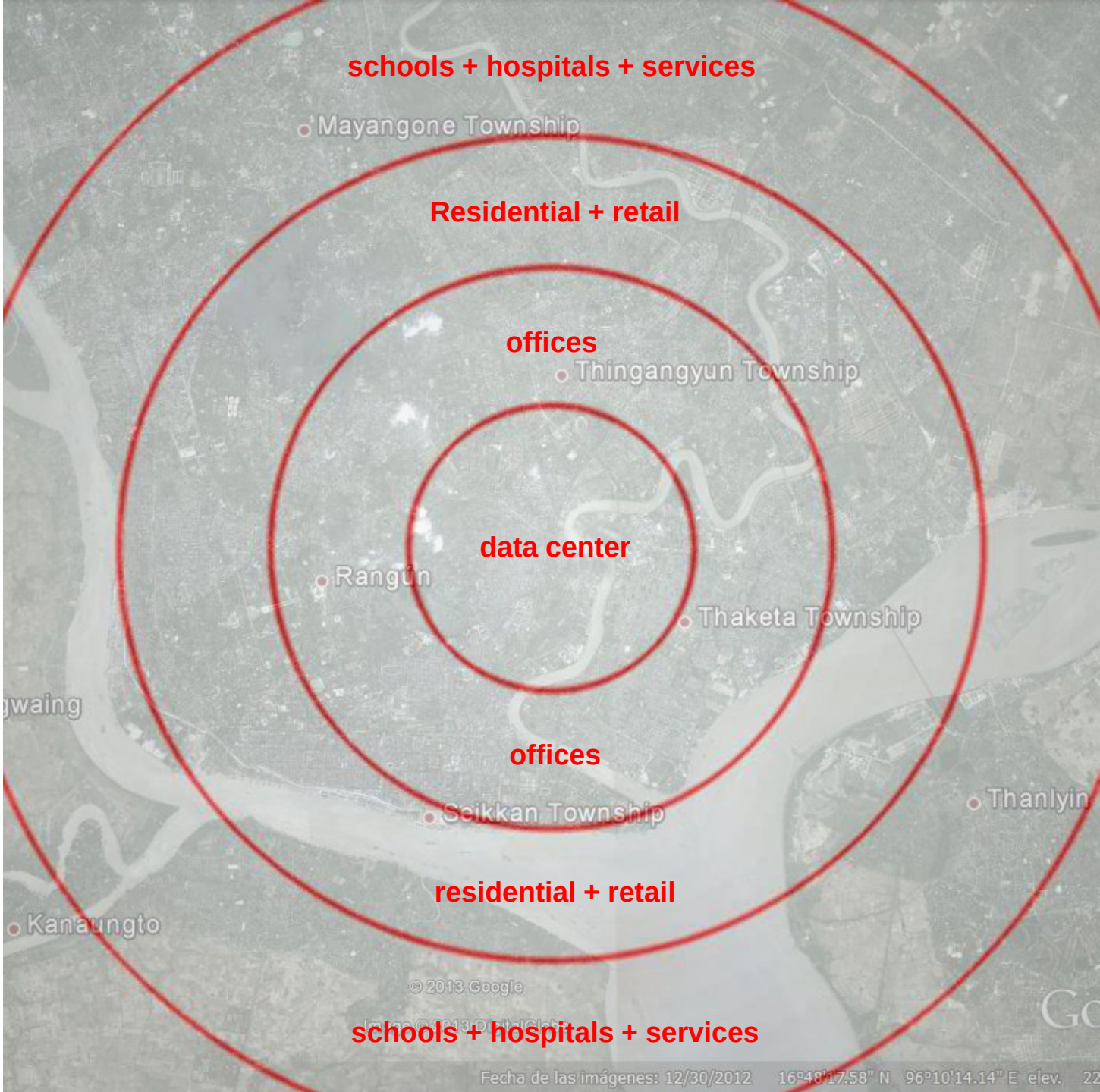


image: google earth

B data

Conclusions:

There are always new challenges…

But this is what does architecture interesting, ¿isn't it?

Where is it worse to build a data center?

Unfavorable regions for building a data center are based on the following criteria:

Access to reliable energy sources, taking the growth prospects of the power consumption (data center scalability) into account.
The use of existing and emerging cleaner, renewable energy
The possibility of free cooling
The possibility of submarine cables,
The presence of stable, scalable network resources
Favorable conditions in the country as a whole (stability, security)
The risk of natural disasters with their consequences,
The project cost (capital and operating costs)
Availability of human resources,
Availability of vendors (The official representative of manufacturers of equipment).

The Result For 10 Worst Countries:

Nigeria
Iraq
South Ossetia
Georgia
Yemen
Somalia
Papua, New Guinea
Haiti
Myanmar
Vatican