

Energy 2.0

Чи є в програмістів майбутнє
в новій енергетиці?







Material
science



Big
data?

Power
engineering

IoT

IoT



Things!

Internet of **Toys**



Internet of **thermostats**



Internet of **Trackers**



Internet of **Toasters**



50 bln

connected devices



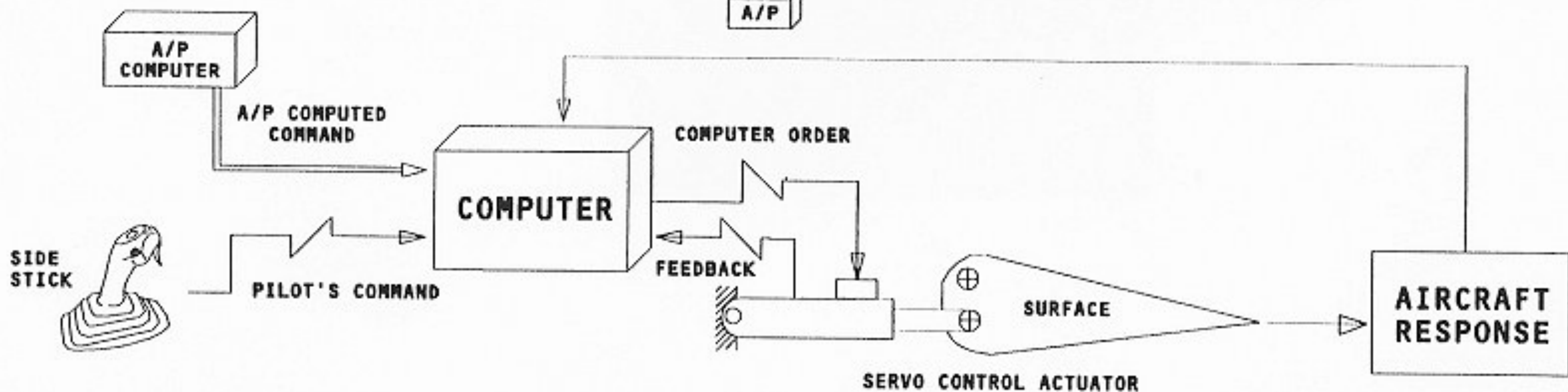
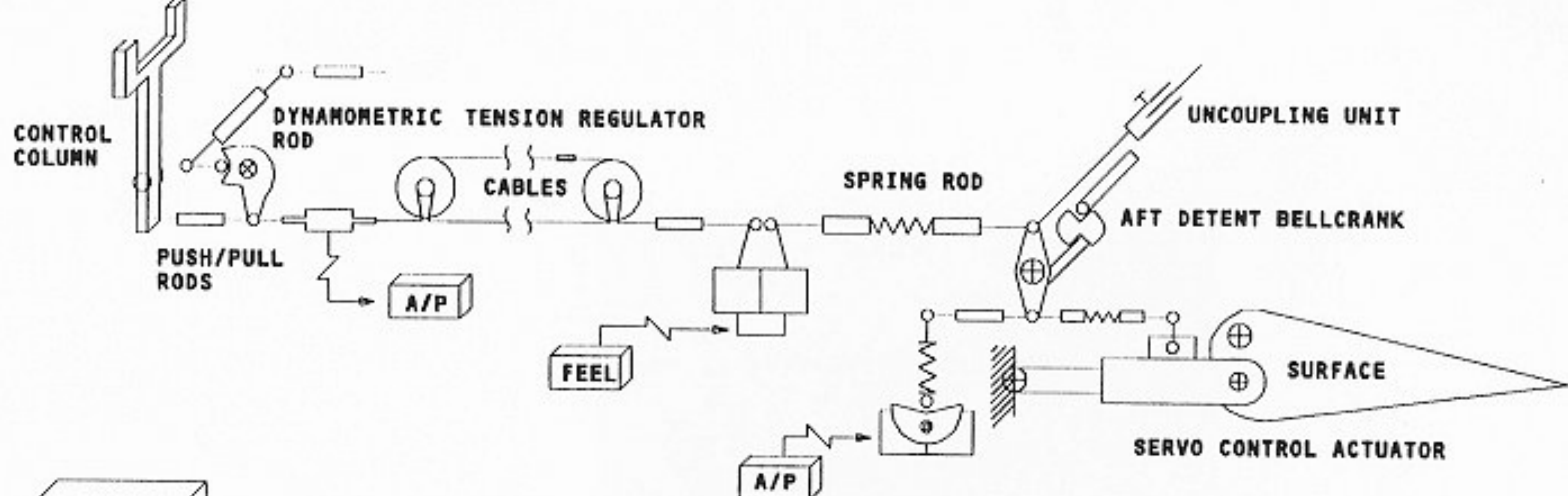
Everybody
loves
IoT!



Well, you
were flying
IoT



already...



FLY BY WIRE PHILOSOPHY



Internet of Transformers

Internet of **Trains**





Internet of **Trains**

Internet of **Trains**



Internet of **Tankers**





Big Things

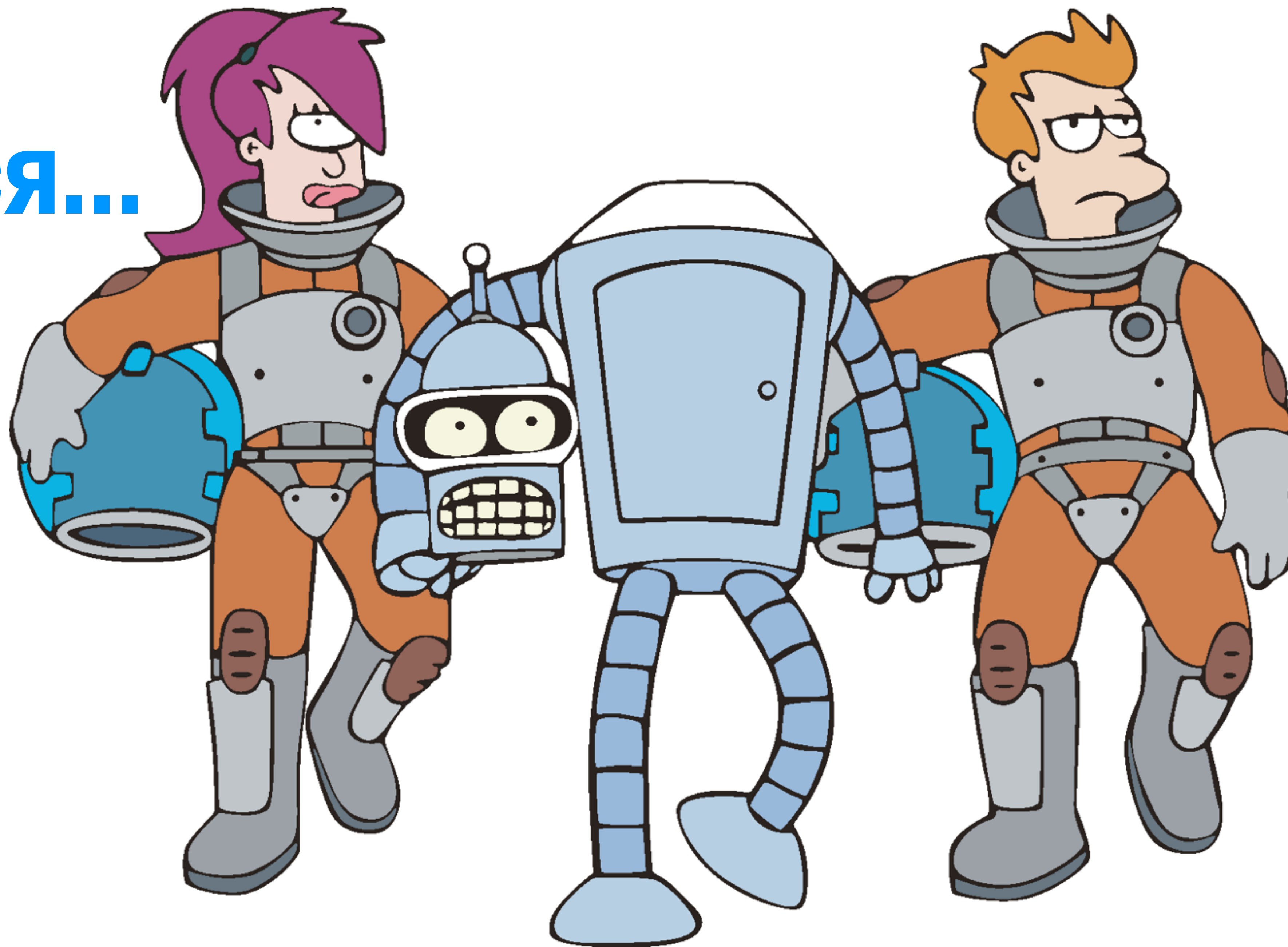
Hopes...



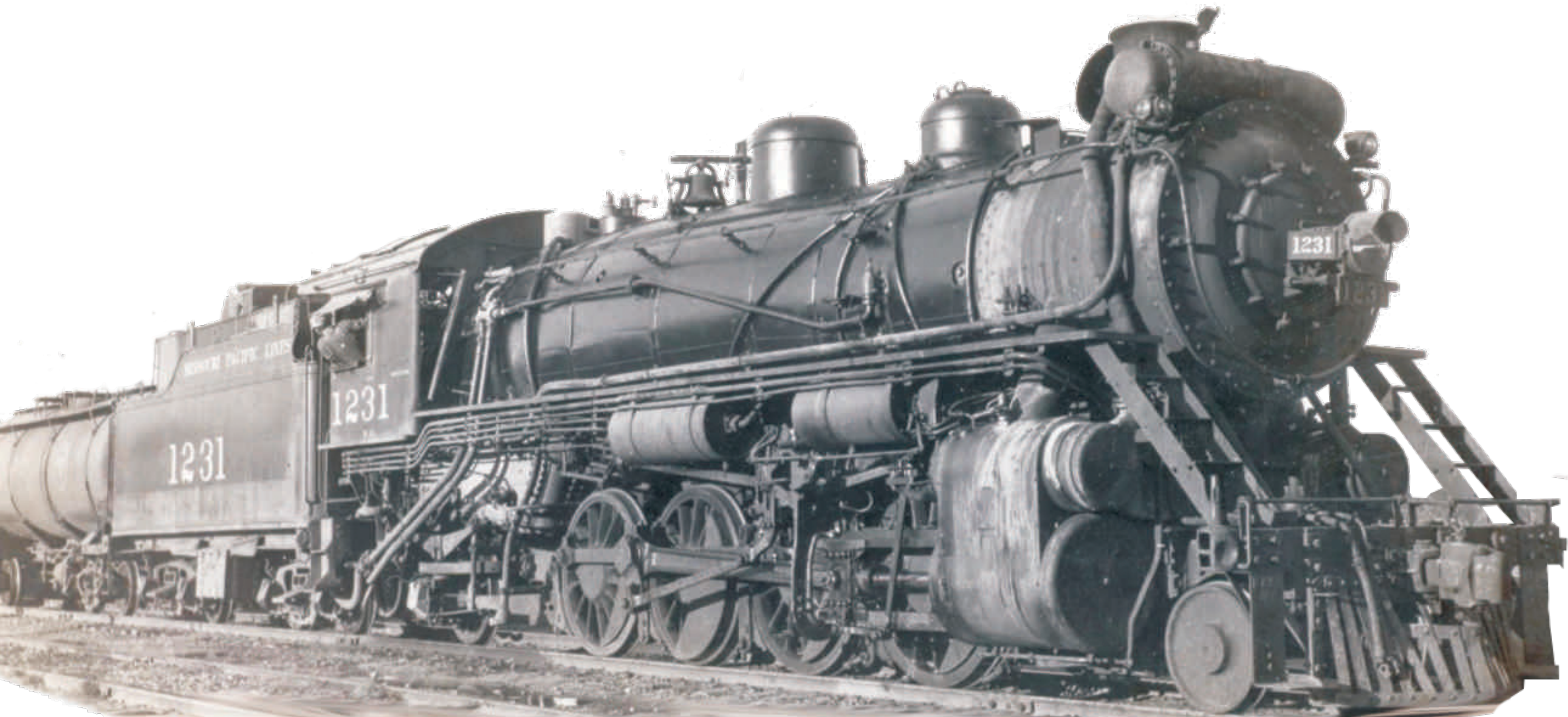
Reality



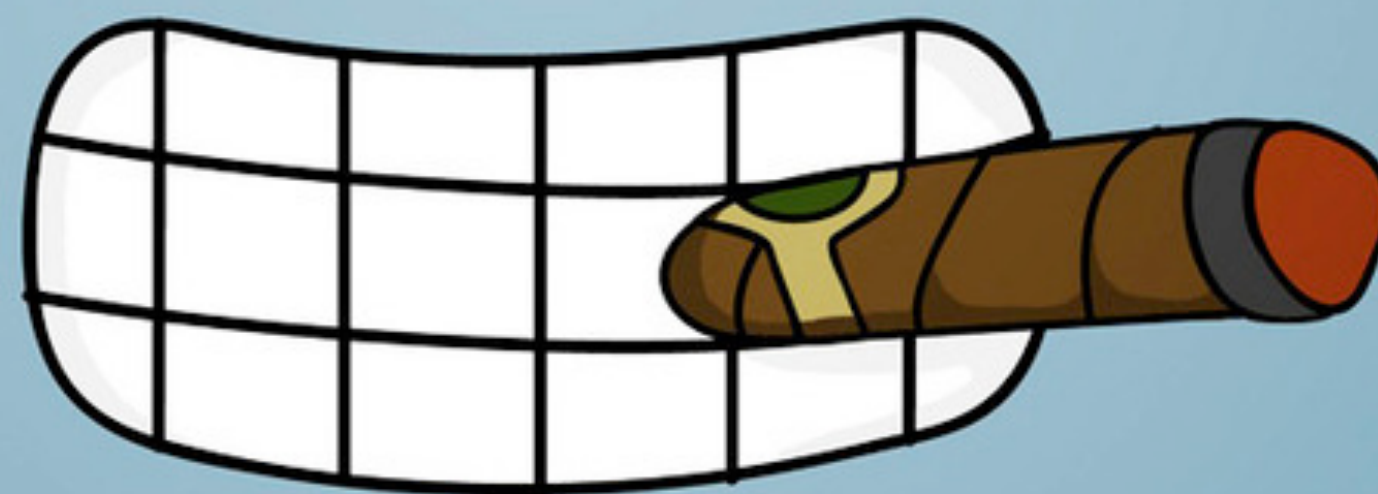
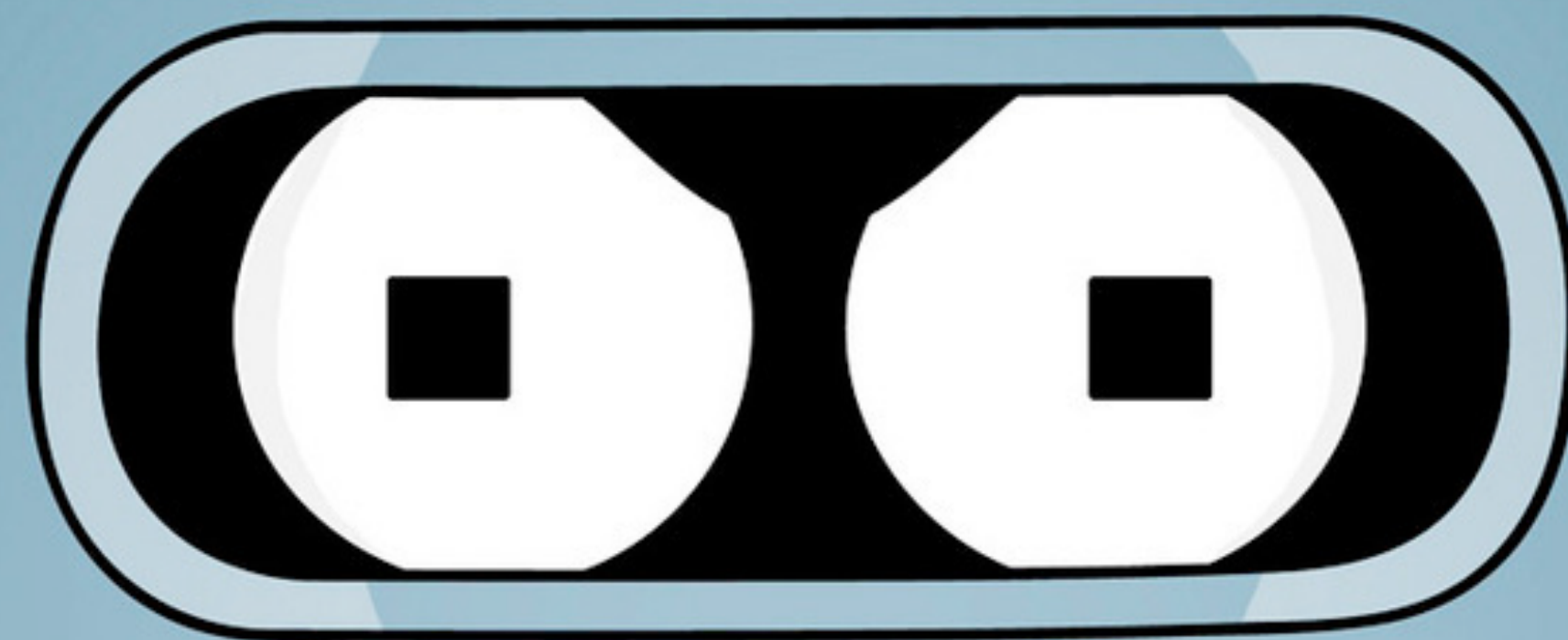
Надо
разобраться...



Building by manual



Я построю свой
собственный
Ecols.me



С докторами наук
и лаборантками!



50%

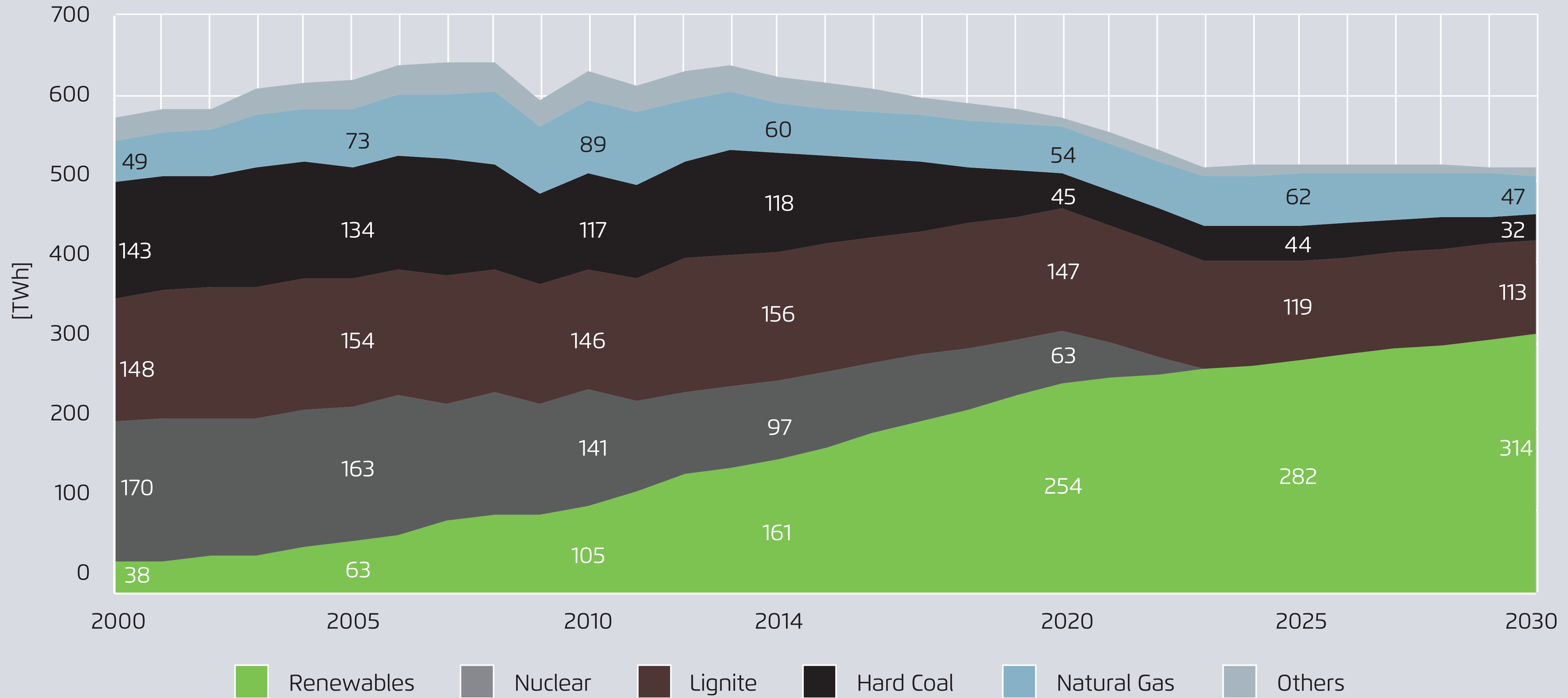
new energy capacities - renewables

33%

renewables in German electrical grid

Recent developments in gross electricity generation in Germany, 1990 - 2014 and scenario until 2030 to reach the government's targets

Figure 21



2/3

new

renewables

capacity

China, India, Brasil

25%

of Chinese generation will be renewables by 2030



\$3,2 trillion

divestment from fossil assets

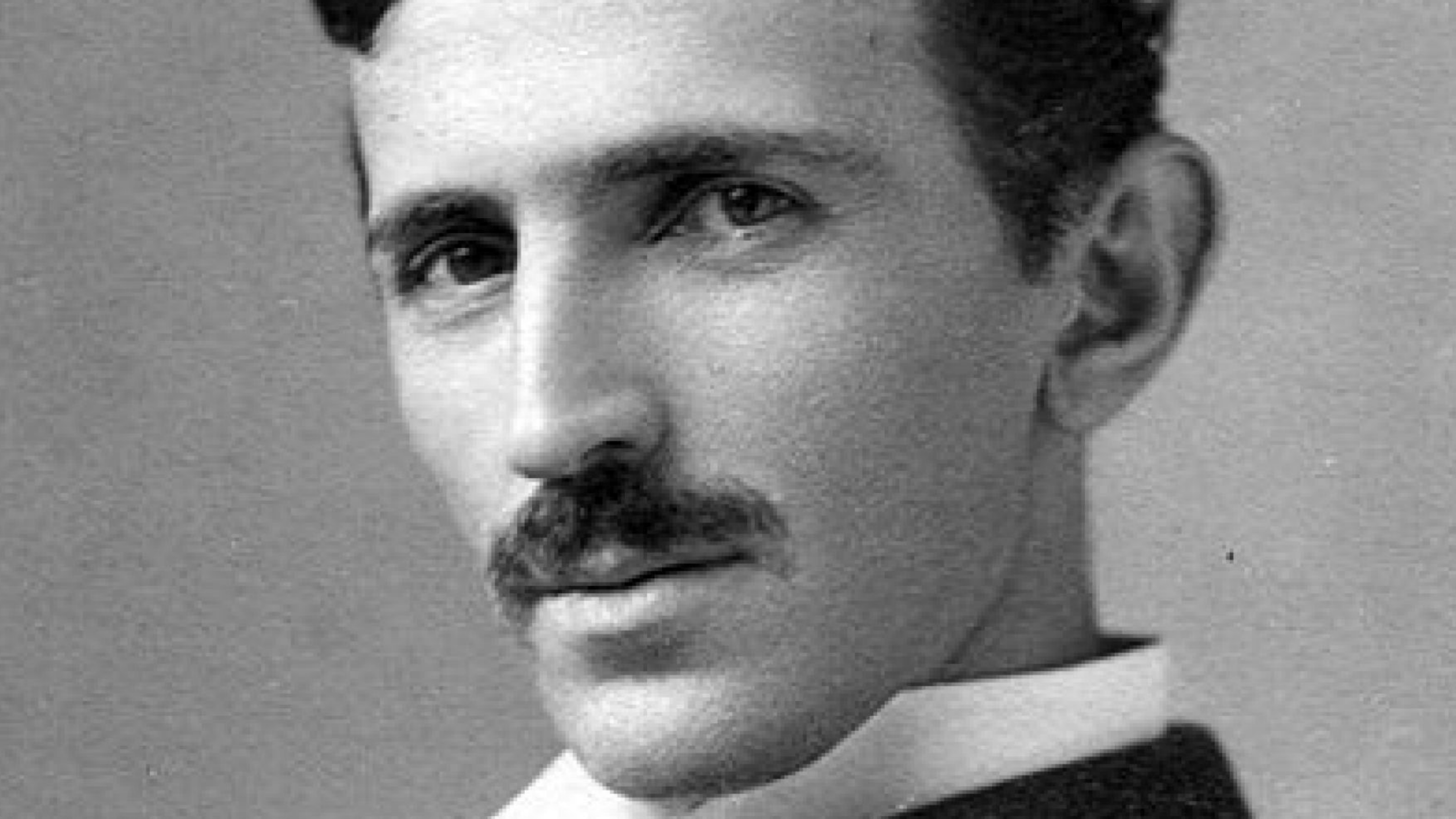
Hackers Renaissance

Why knowledge is more important
than manuals

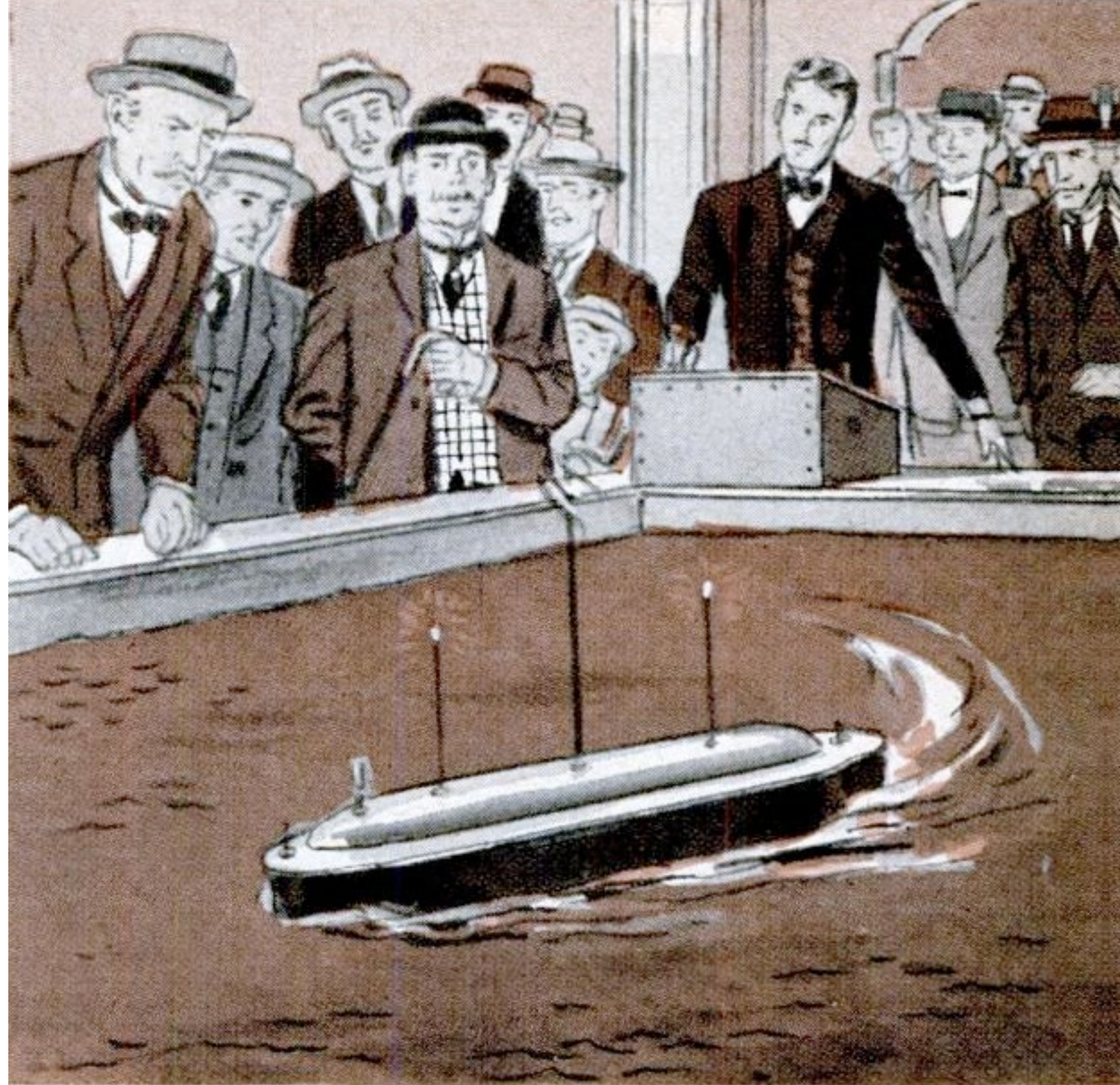


Чуваки, це
реально
Ренесанс!















**Underwater
welding**

**Че там у
Маска?**

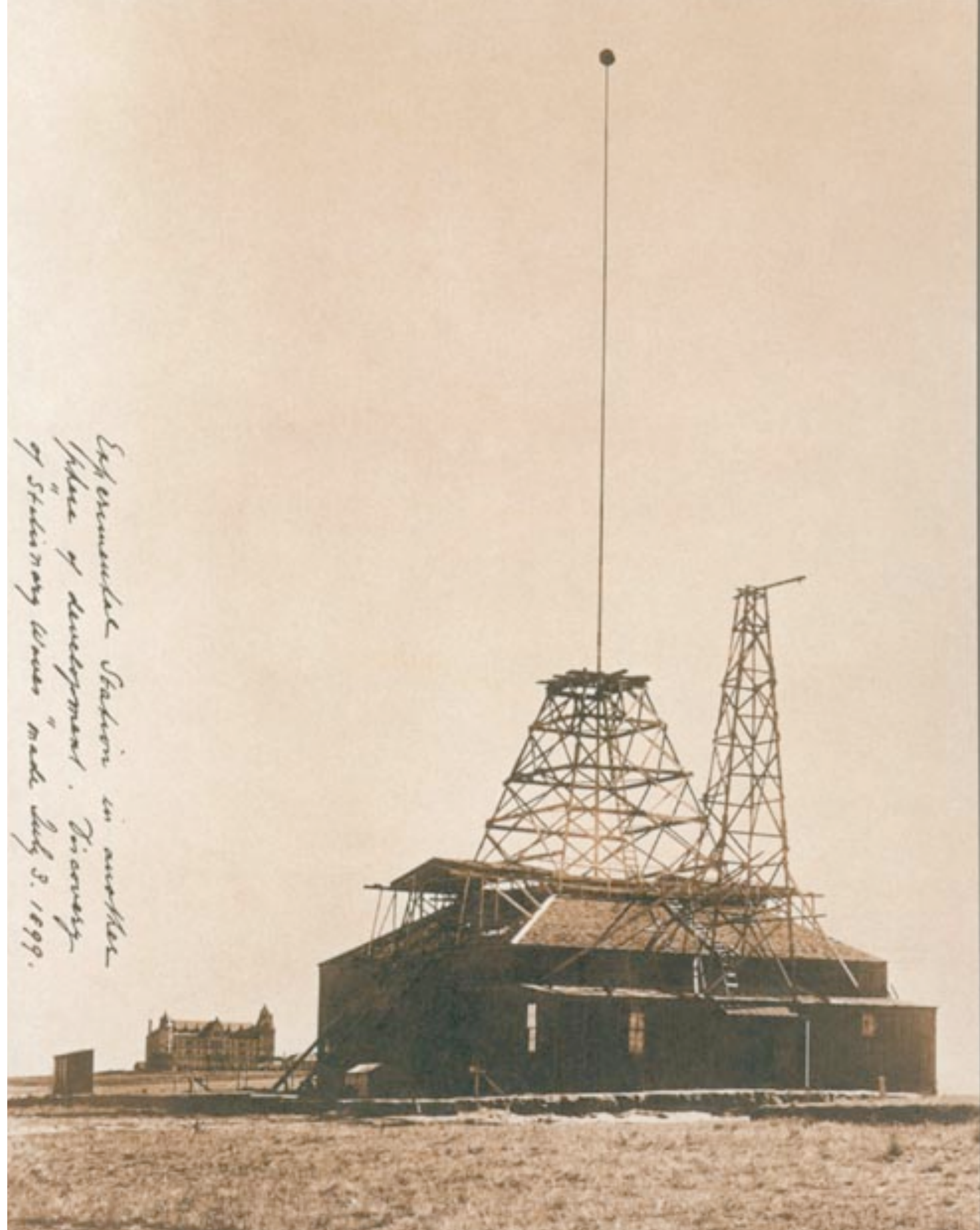
#МарсНаш





Чудо першої радіо- передачі

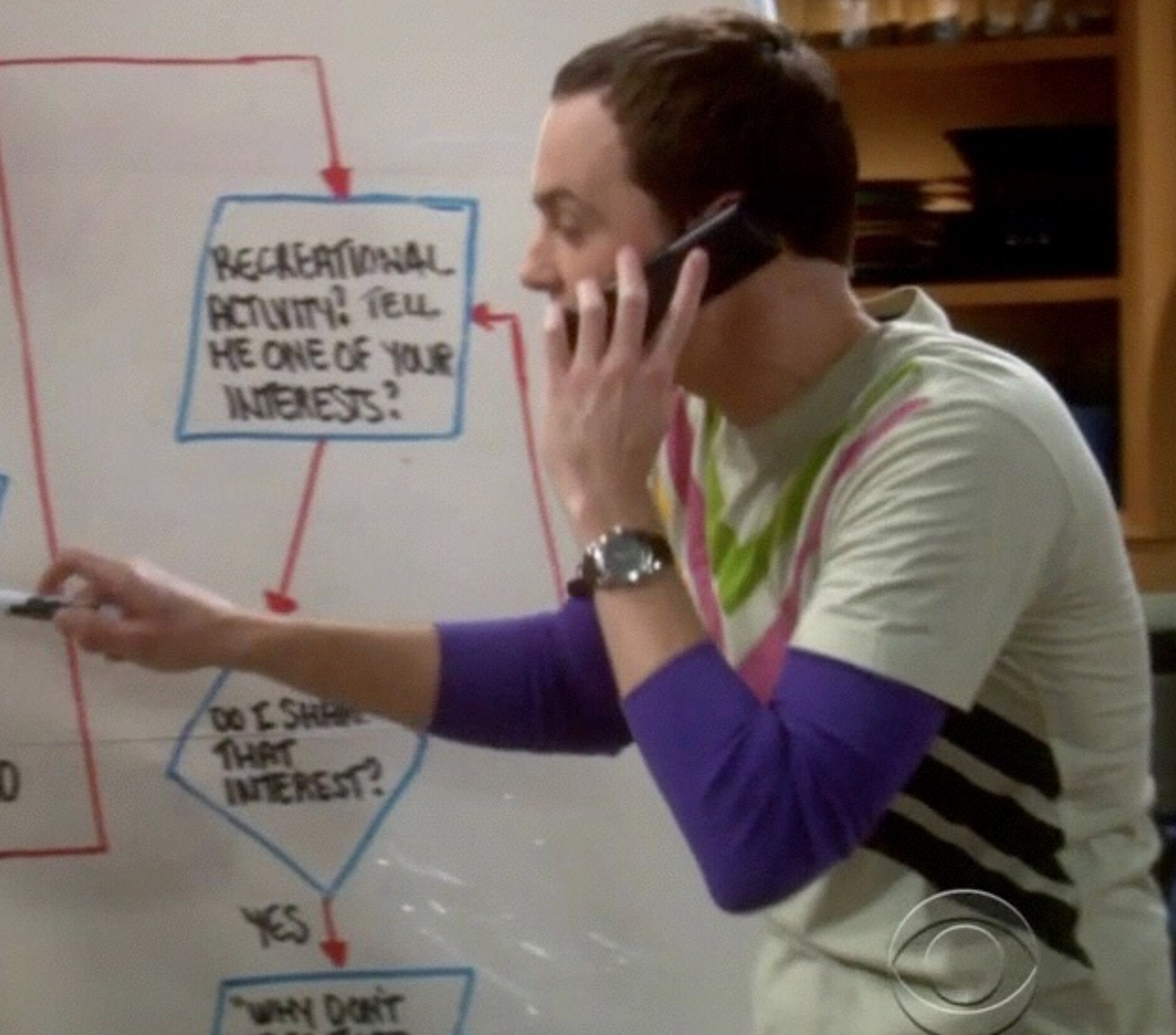
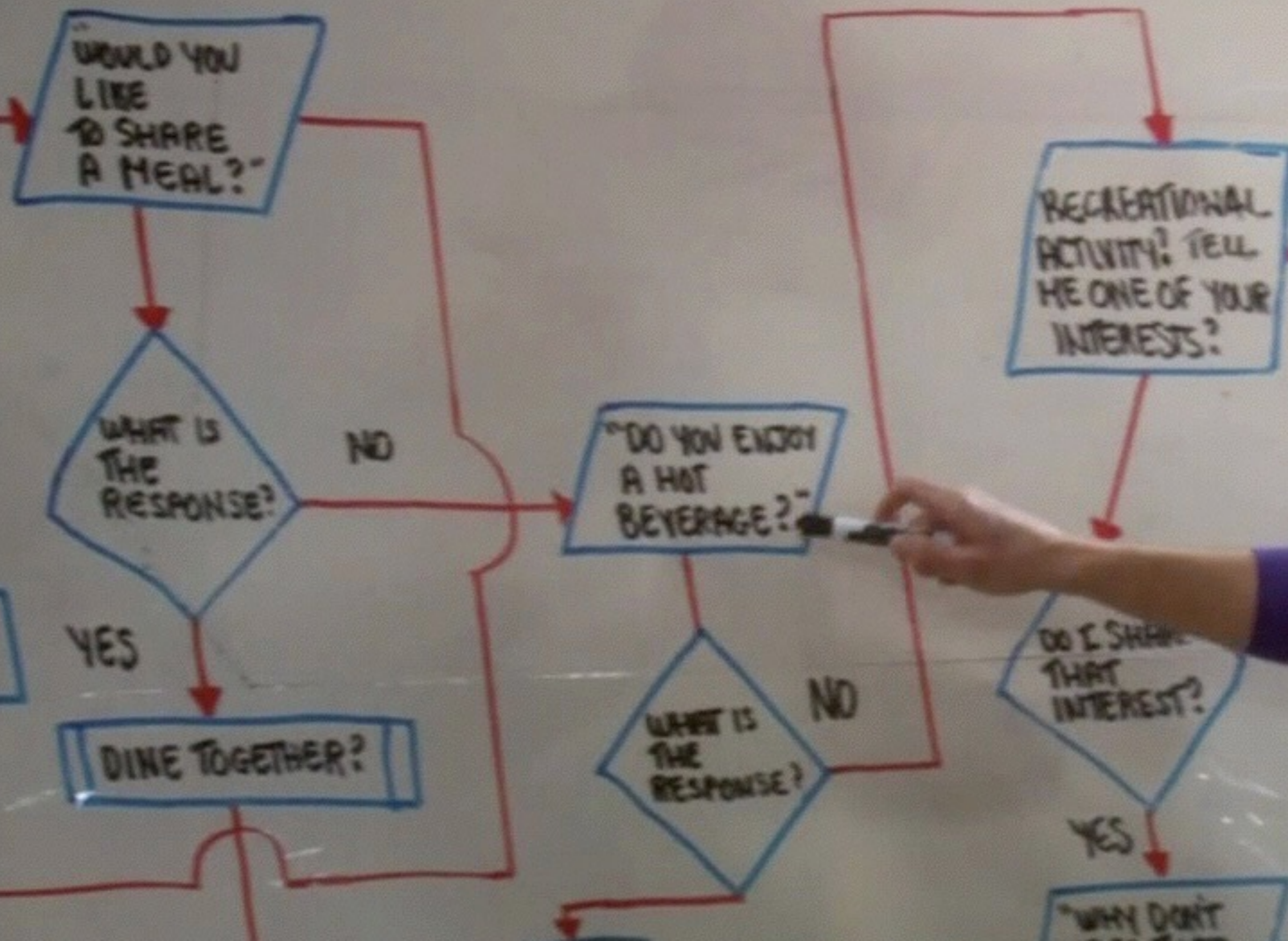
(до Марконі
і Попова)



Відновлювана енергетика?



Від фізики до алгоритмів



Tesla Model S is getting even quicker through a software update

by Jon Fingas | @jonfingas | January 29th 2015 at 6:55 pm



49



If you didn't think that Tesla's [Model S P85D](#) was *bonkers enough*, you're in for a treat. Elon Musk has [revealed](#) that the already speedy electric sedan is getting a software update that will improve its 0-60MPH acceleration time by a tenth of a second, to 3.1 seconds. That may not sound like much, but that makes the Model S as quick off the mark as McLaren's MP4-12C supercar. The 'regular' P85 will also get a boost [Musk says](#), although it won't be "quite



FEATURED STORIES



'Final Fantasy: Type-0' is a great documentary within an OK game

16 hours ago

16



Elon Musk ✓

@elonmusk

 Follow

Tesla P85D 0 to 60mph acceleration will improve by ~0.1 sec soon via over-the-air software update to inverter algorithm

10:33 PM - 29 Jan 2015

4,253 RETWEETS 4,522 FAVORITES



dogfishbird | JANUARY 29, 2015

My wife borrowed my P85+ tonight to take the kids to basketball practice. (she borrows my Tesla EVERY chance she gets). Before she left, I mentioned the software update that just installed (115) improves the acceleration. She said "Yeah, right, it could also leave me stranded..."

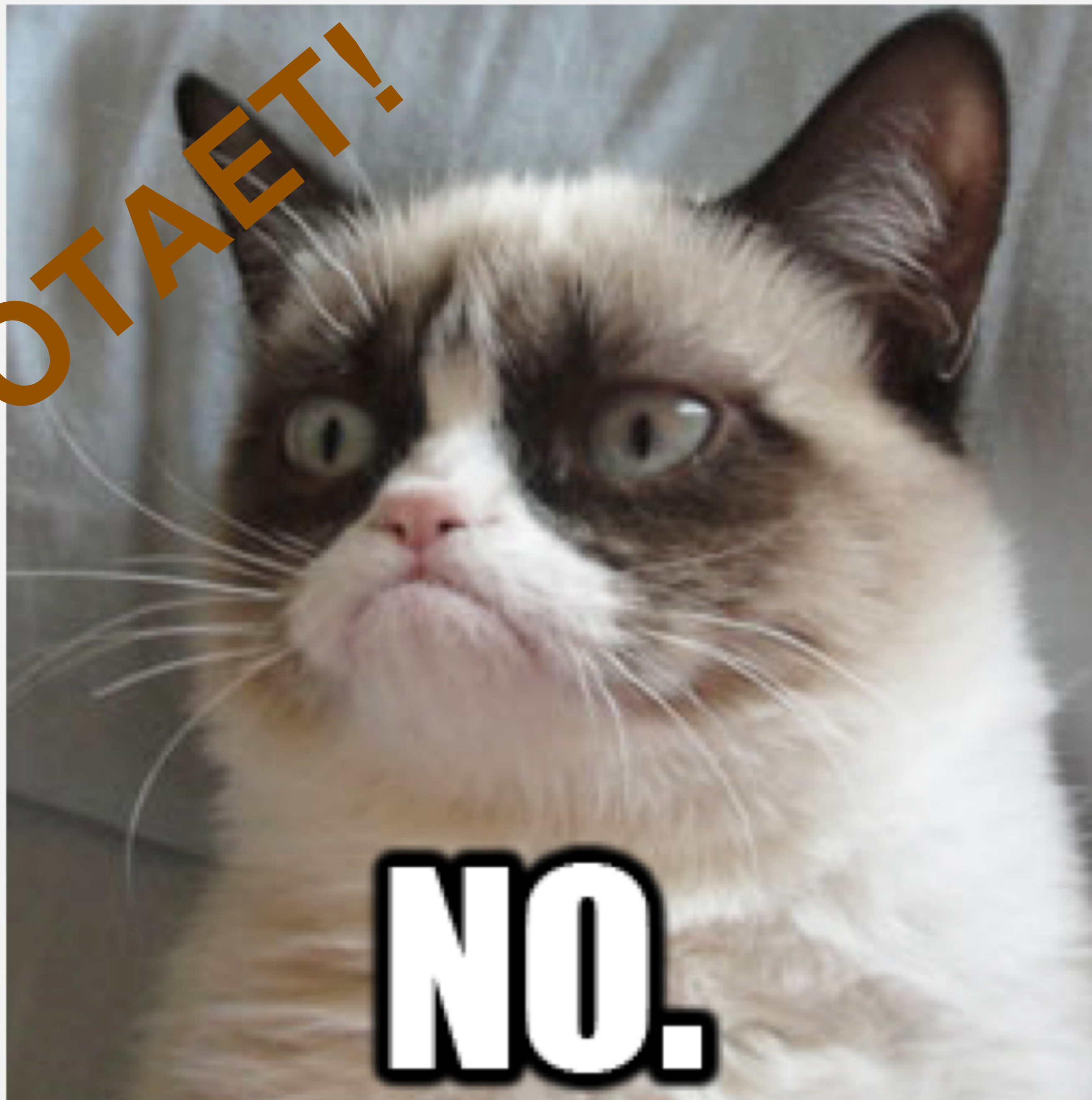
10 minutes later, she called me, which made my heart skip a beat, for I had visions of her stalled in an intersection. She was practically screaming over the phone, "WOW - THE ACCELERATION IS UNBELIEVABLE!! WHAT A DIFFERENCE!!"

I haven't verified it myself because she's not home yet, but I thought I'd contribute to the drama.

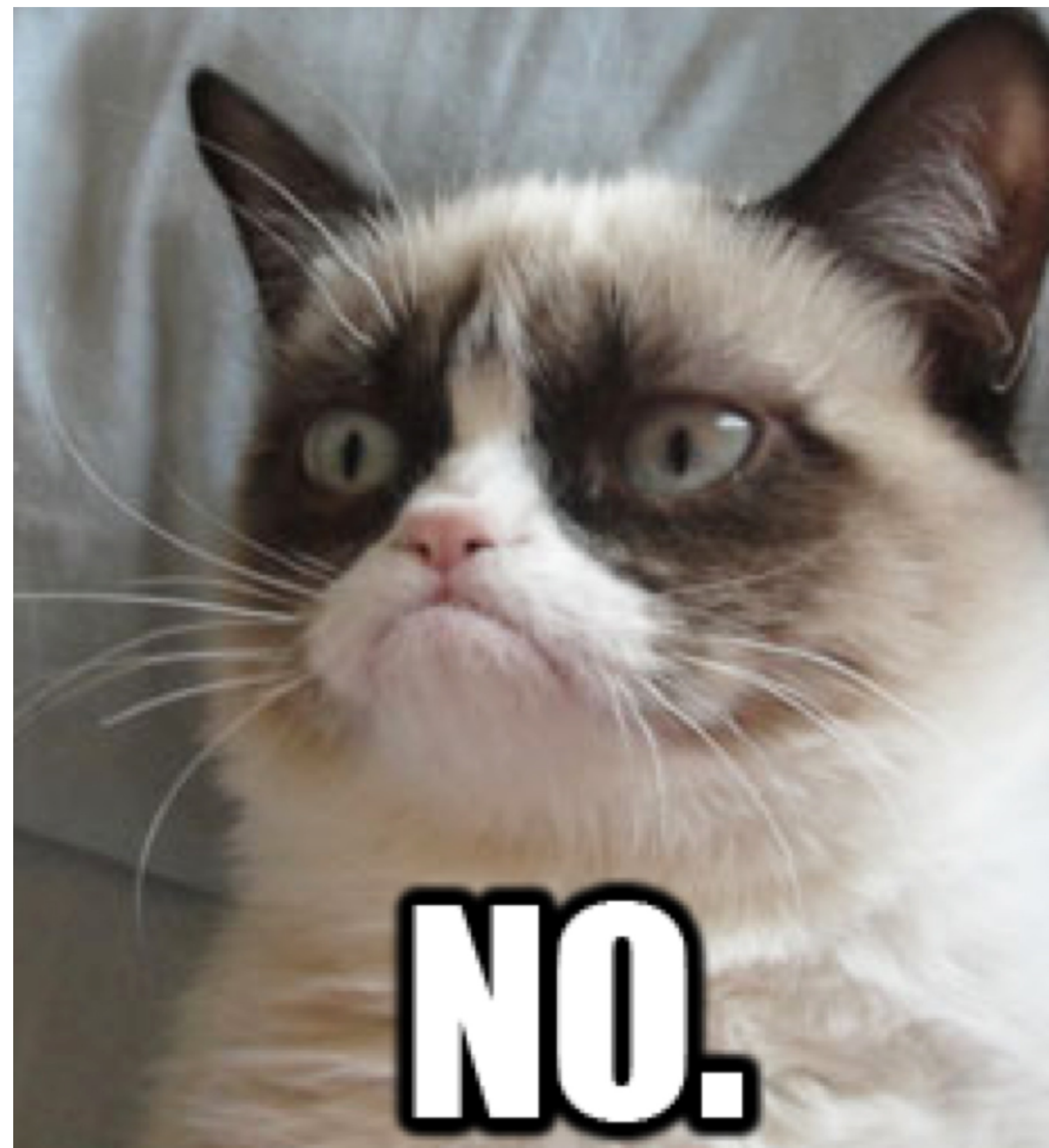
Чому майбутнє поруч



НЕ
СРАБОТАЕТ!



NO.

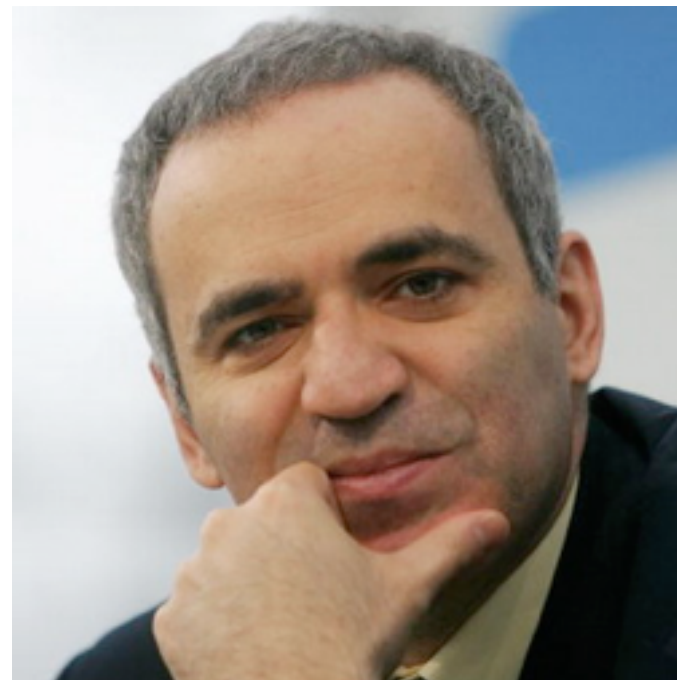


Чому не ще один Instagram?

“ Помітний прогрес в сфері ІТ з 1970 по 2000-ні роки відбувався на фоні стагнації в сфері енергетики, транспорту, космосу, сільського господарства та медицини. ”

«Наша небезпечна ілюзія технічного прогресу»

Гаррі Каспаров та Пітер Тіль / 8 листопада 2012

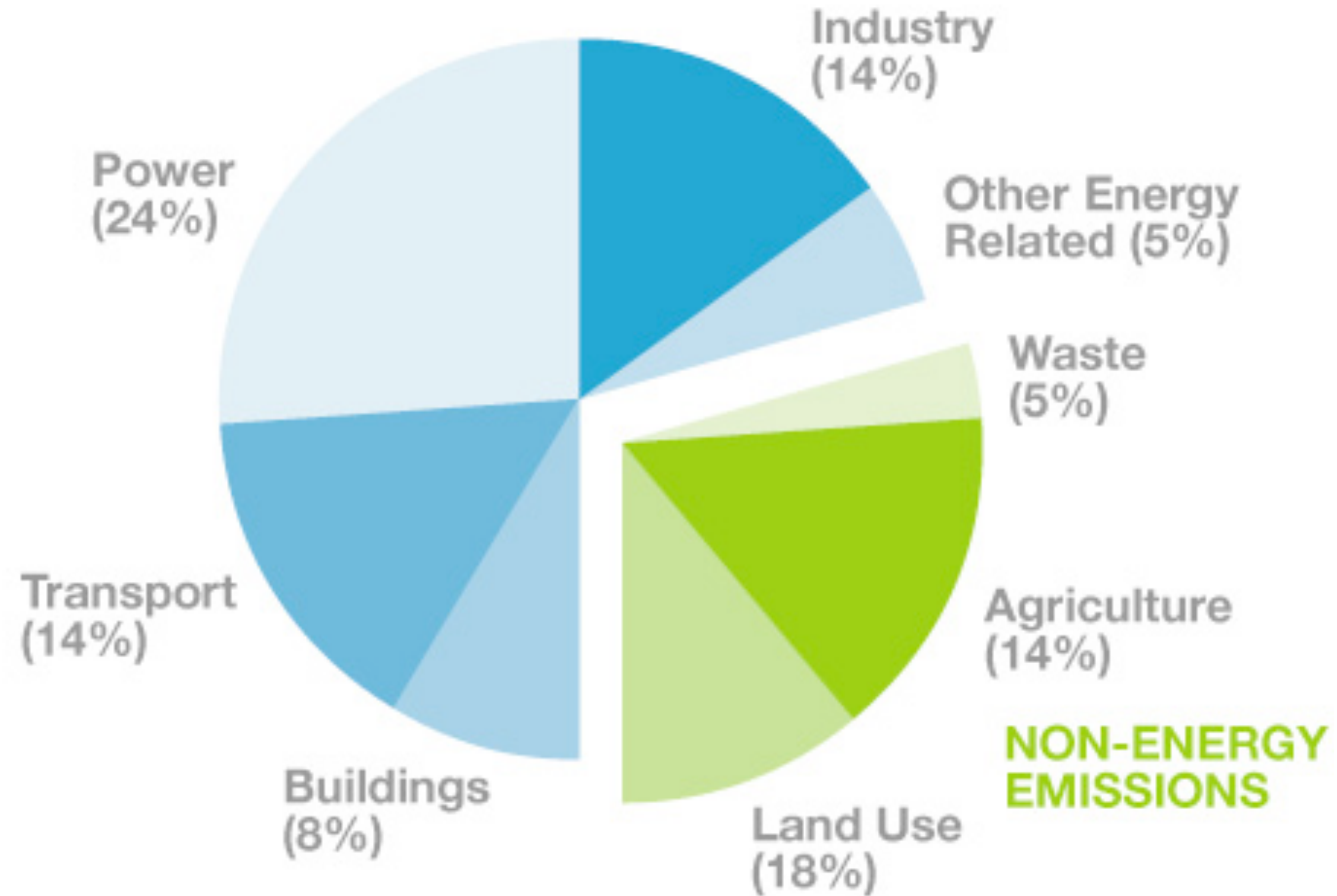


Каха Бендукідзе

На самом деле идея естественных монополий – это фальшивая идея, потому что она исходит из какого-то архаичного представления о продукте. Газ, который ты мне поставляешь, конкурирует не с газом, который мне поставляет другой поставщик, а с электроэнергией, с дровами, с углем, с отходами, с утеплением окон и так далее.

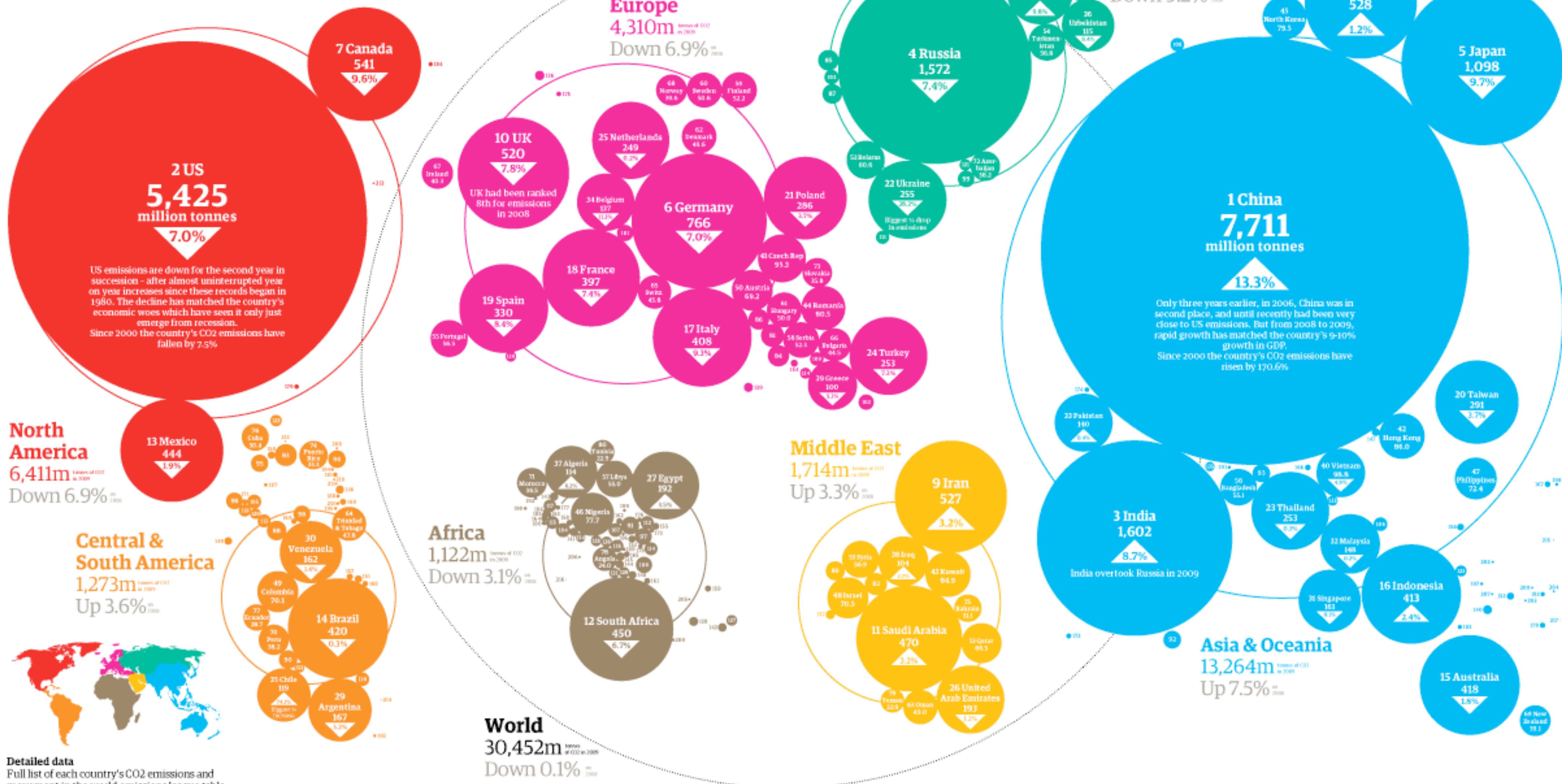
Old good CO₂

Global Emissions by Sector



An atlas of pollution: the world in carbon dioxide emissions

Latest data published by the US Energy Information Administration provides a unique picture of economic growth - and decline. China has sped ahead of the US, as shown by this map, which resizes each country according to CO₂ emissions. And, for the first time, world emissions have gone down



Detailed data
Full list of each country's CO₂ emissions and movement in the world emissions league table



75 %
of CO²
emissions

comes from cities





Resiliency?







Mobility?





Так а що робити?





Developers,
energy
sector **needs**
you!



60

80

100

120

140

km/h



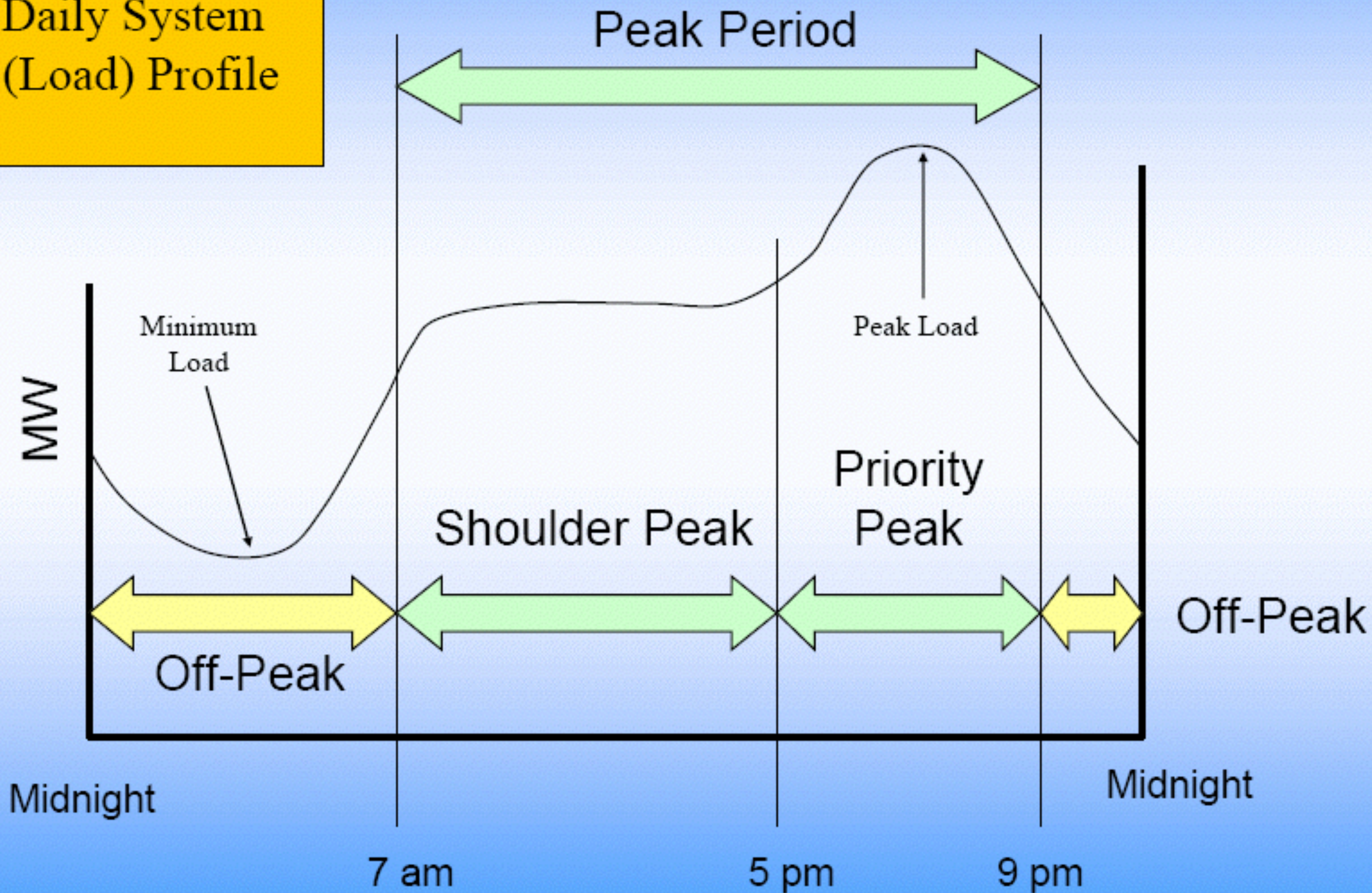
000184

10-40A 220V 50Hz

507419 97c



Typical Daily System Demand (Load) Profile



Enter **Smart Grid...**

[illegible]

Tantulus
3000818B10 IC 3088A-T90003
TC-1218 2509 FCC O2FT90003

00000
kWh

CL200 240V 3W TYPE C1S 30TA 1.0Kh

epb 501166

CA 0.5
FM2S
60Hz

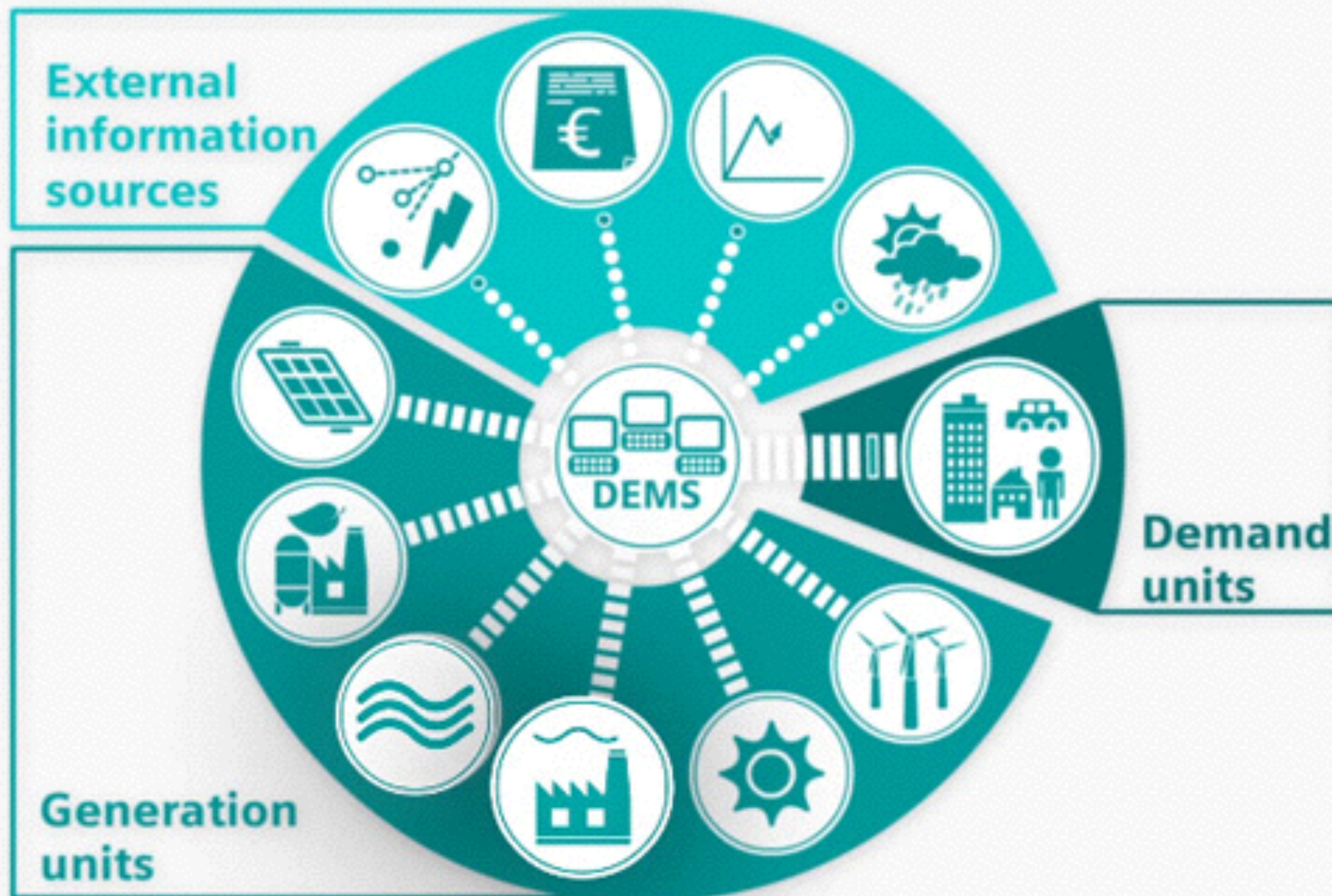
*1NF 501166 *

61 399 166

Itron
WATTHOUR METER



THE METER HAS BEEN LINKED & IDENTIFIED FOR CORRECT POLARITY	
DEAL NO:	1605/16
DATE:	21-05-11
SPIN:	ANTHONY/DAVE
REMOVED METER:	
MR NO:	15/2210 504/11
MR E:	174022
MRV:	21/05/11
MR:	
INSTALLED METER:	
MR NO:	1605/16
MR:	ANTHONY
MRV:	
MR:	
NO ACCESS TO PROPERTY	







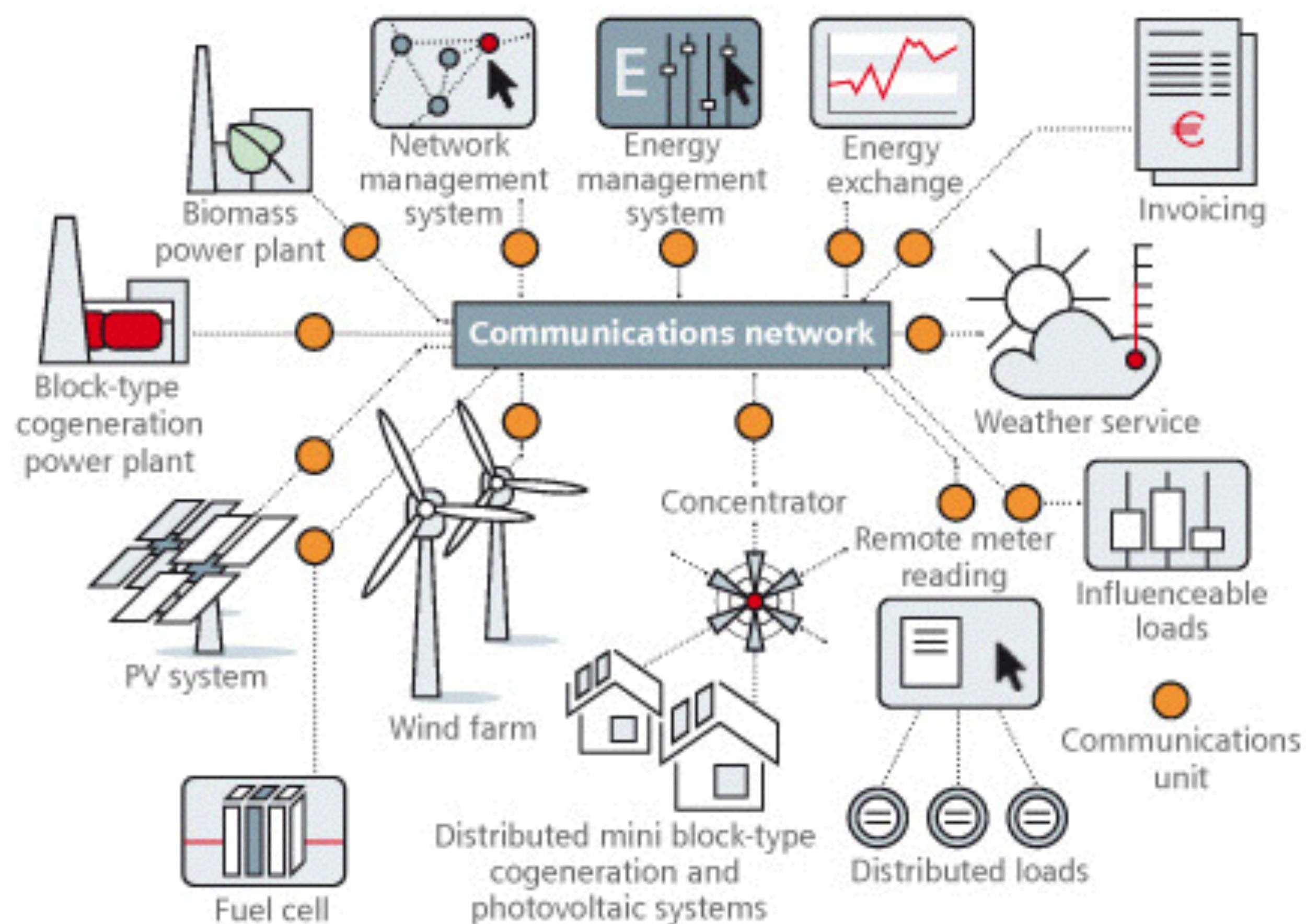


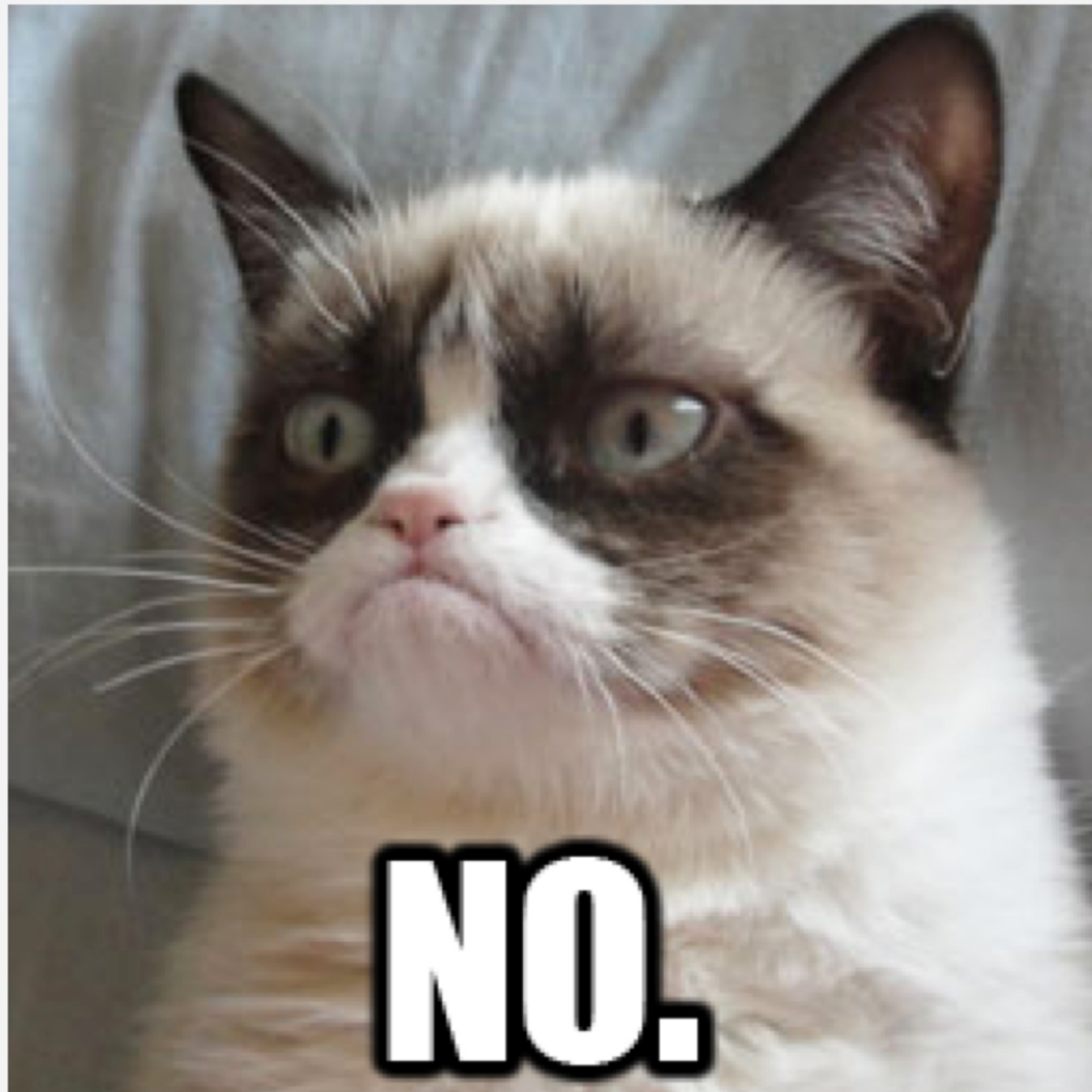


Program your
power plant!



Advanced IT is the Core Element of a Virtual Power Plant



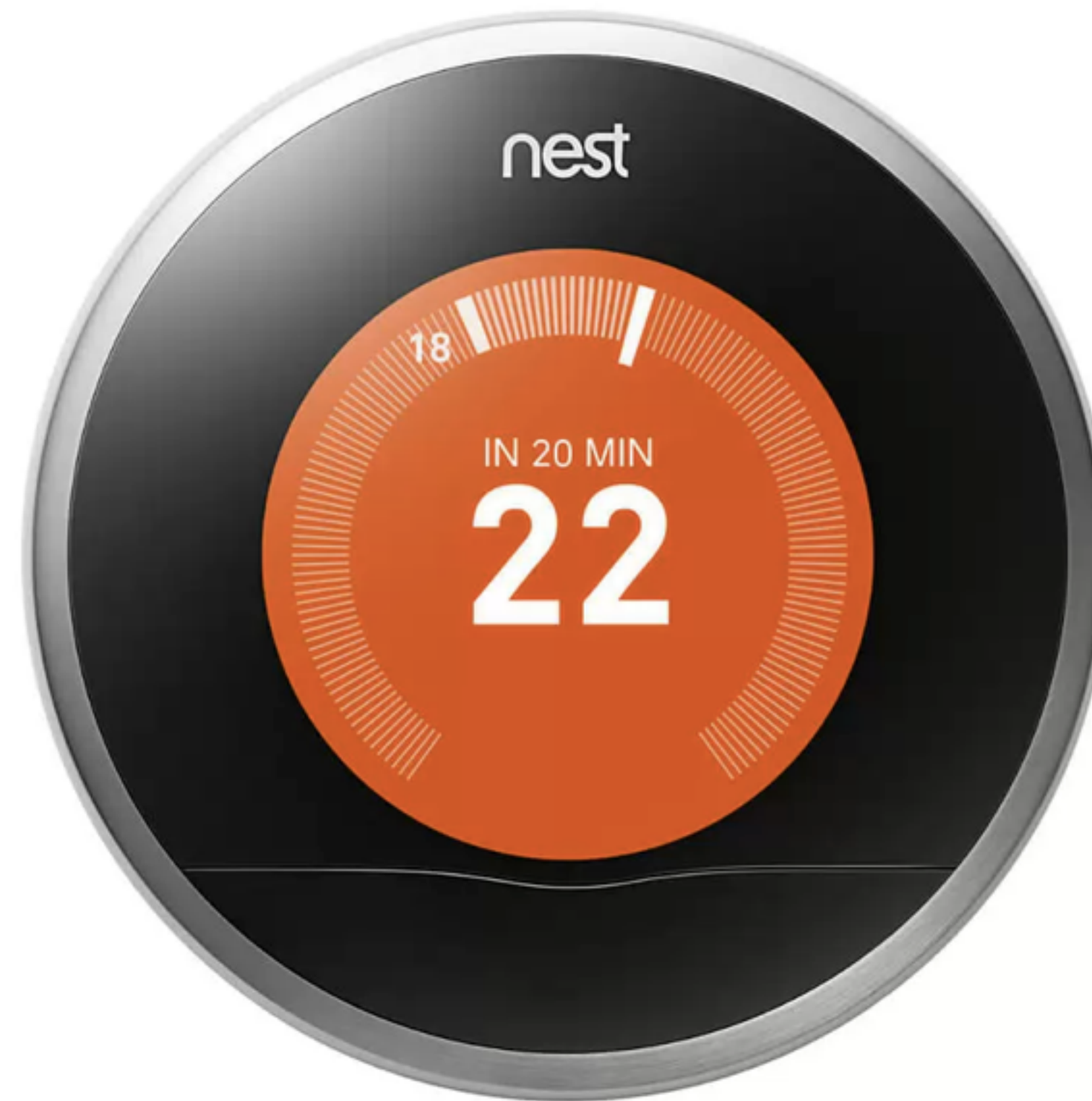




Енергія з даних

[illegible]

Nest is not a device



Nest is

interface

sensor

algorithm

cloud

API

...



| What is Google?

Google Search

I'm Feeling Lucky

Google.com.ua offered in: [українська](#) [русском](#)

Nest is **Data**

3 500 000 000 \$

заплатив Google за Nest

Apple hires head of Mercedes-Benz R&D, other auto experts for new secret research lab



Jordan Kahn AAPL Company

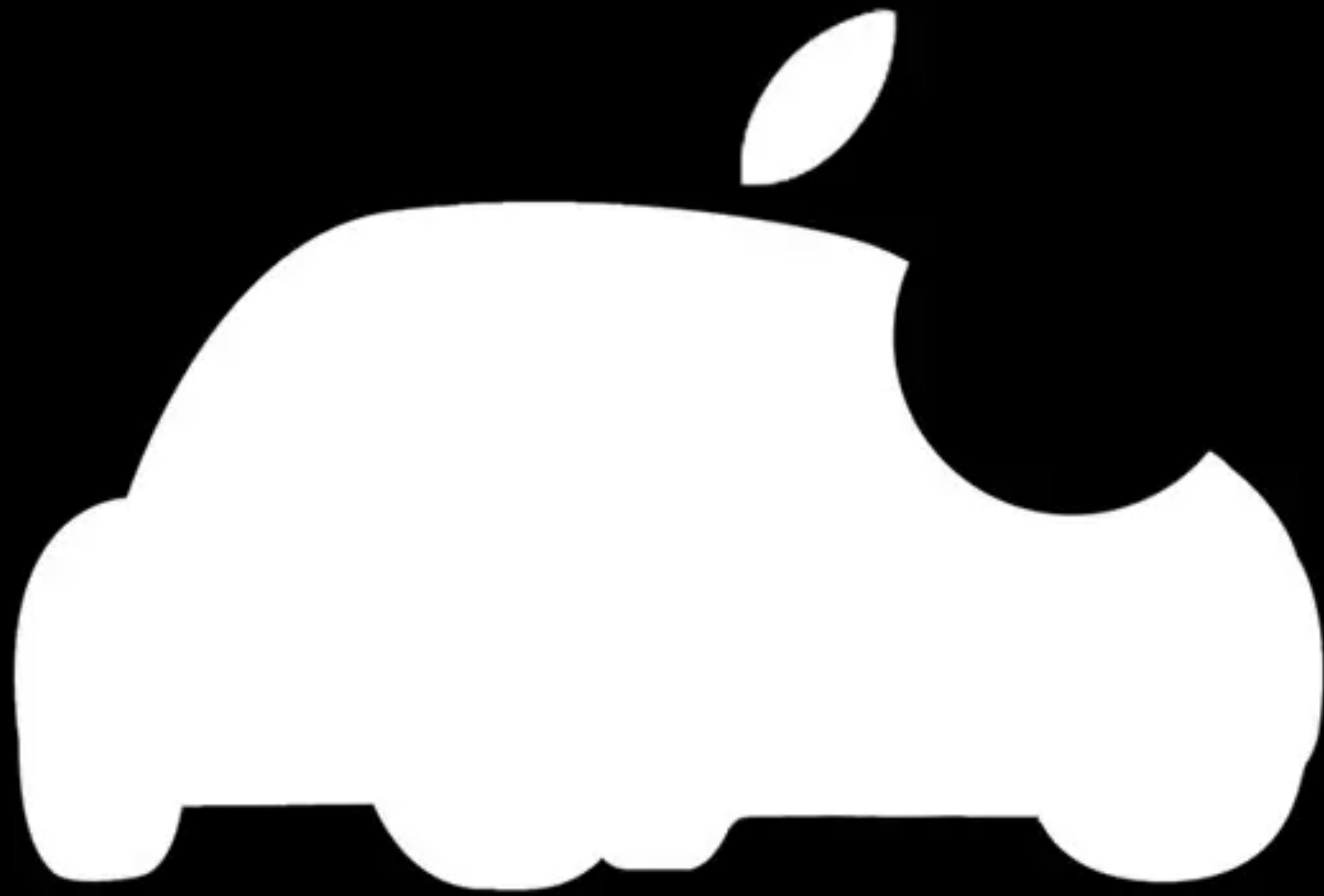
FEBRUARY 13, 2015 / 10:53 AM

SHARE 16 COMMENTS



Apple has hired former president and CEO of Mercedes-Benz Research & Development Johann Jungwirth to join the company as Director of Mac Systems Engineering. The hire was confirmed by Jungwirth's [LinkedIn](#) page, and first noted by a report in the [Financial Times](#) detailing Apple's recent hires in the automotive industry and secretive new automotive research lab.

The report claims Apple's automotive hires are for a new research lab where "experienced managers from its iPhone unit, are researching automotive products." [Read more](#)



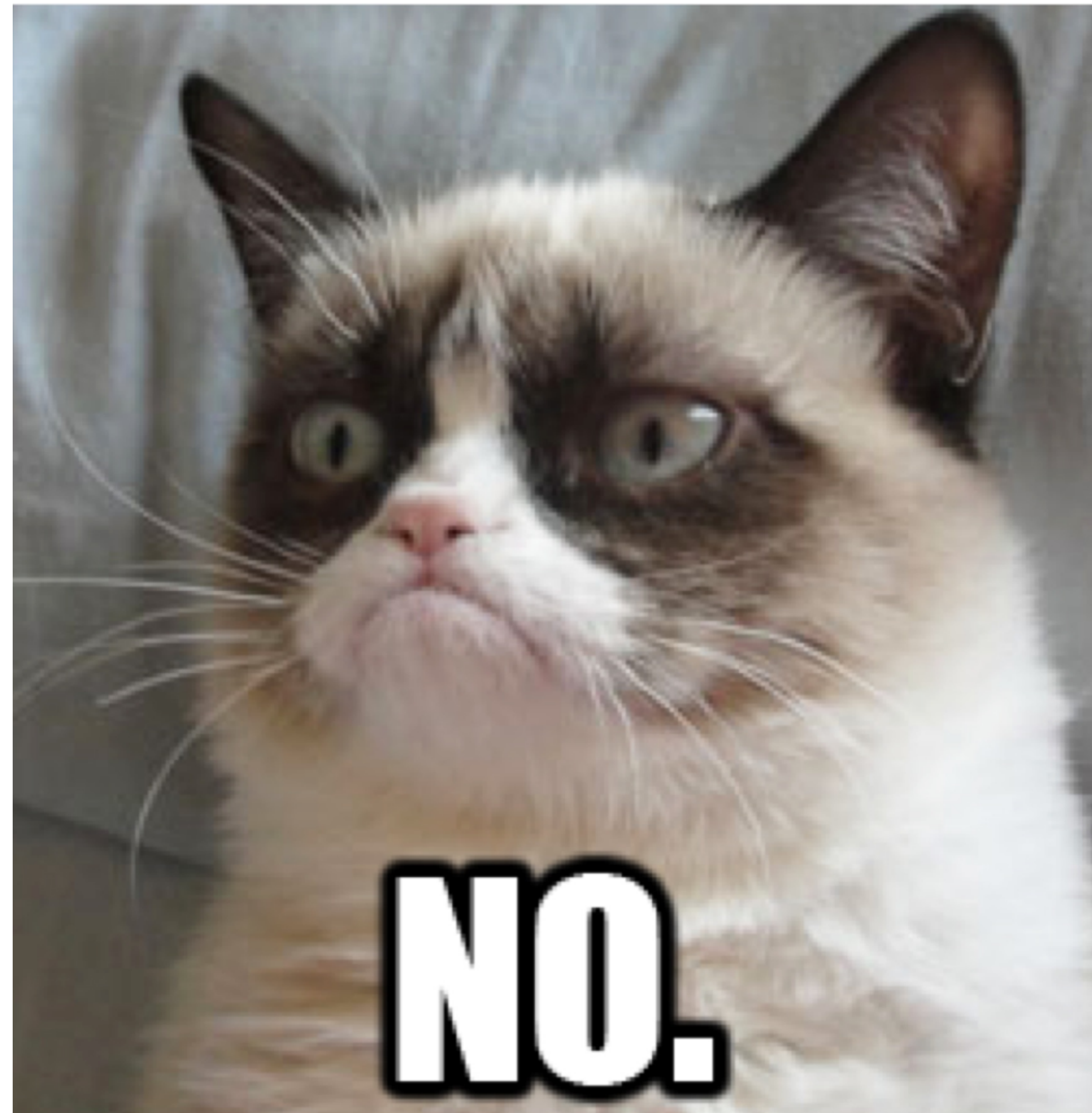






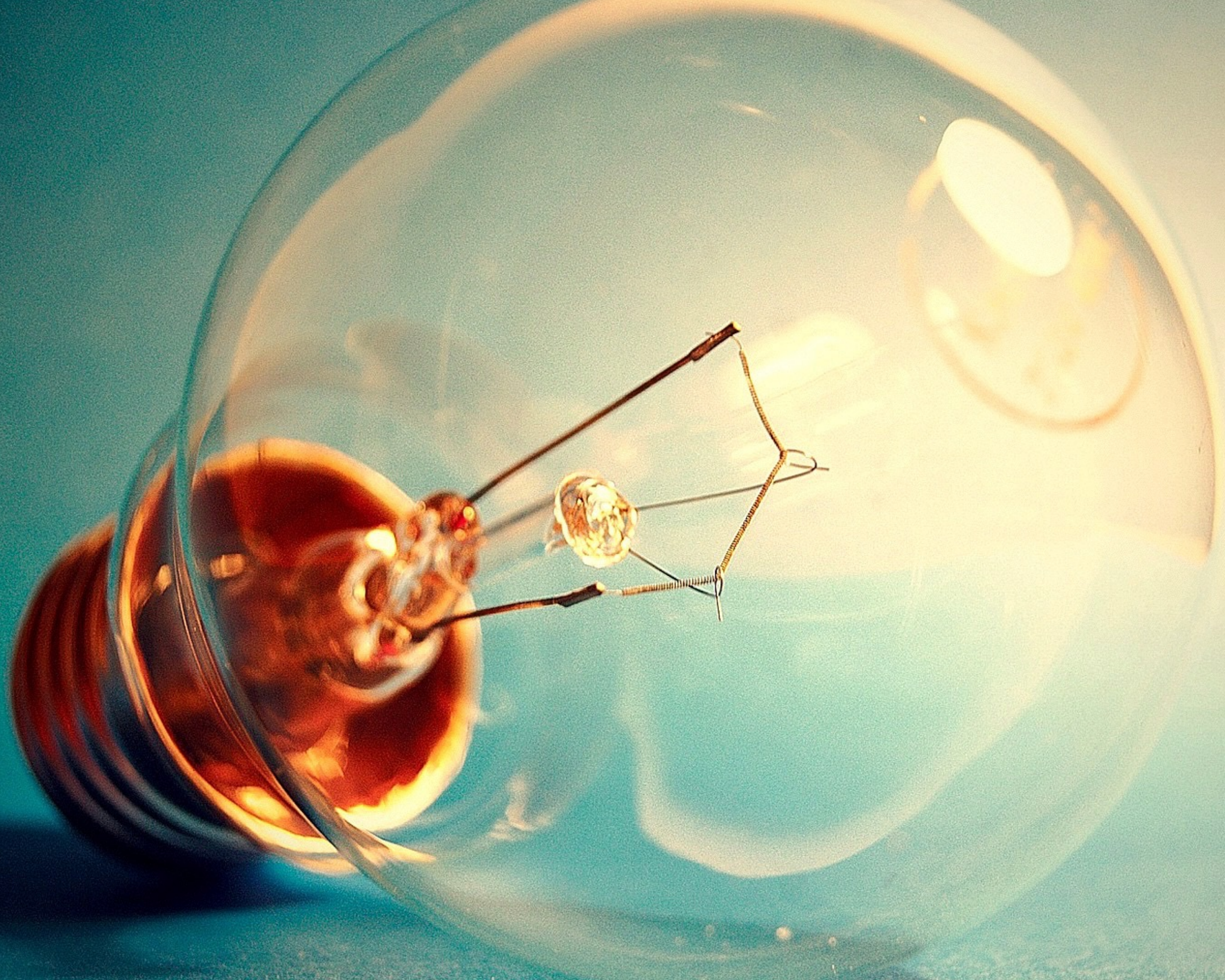


~~185~~





Гаджет в патроні











Запрограмувати
будівлю





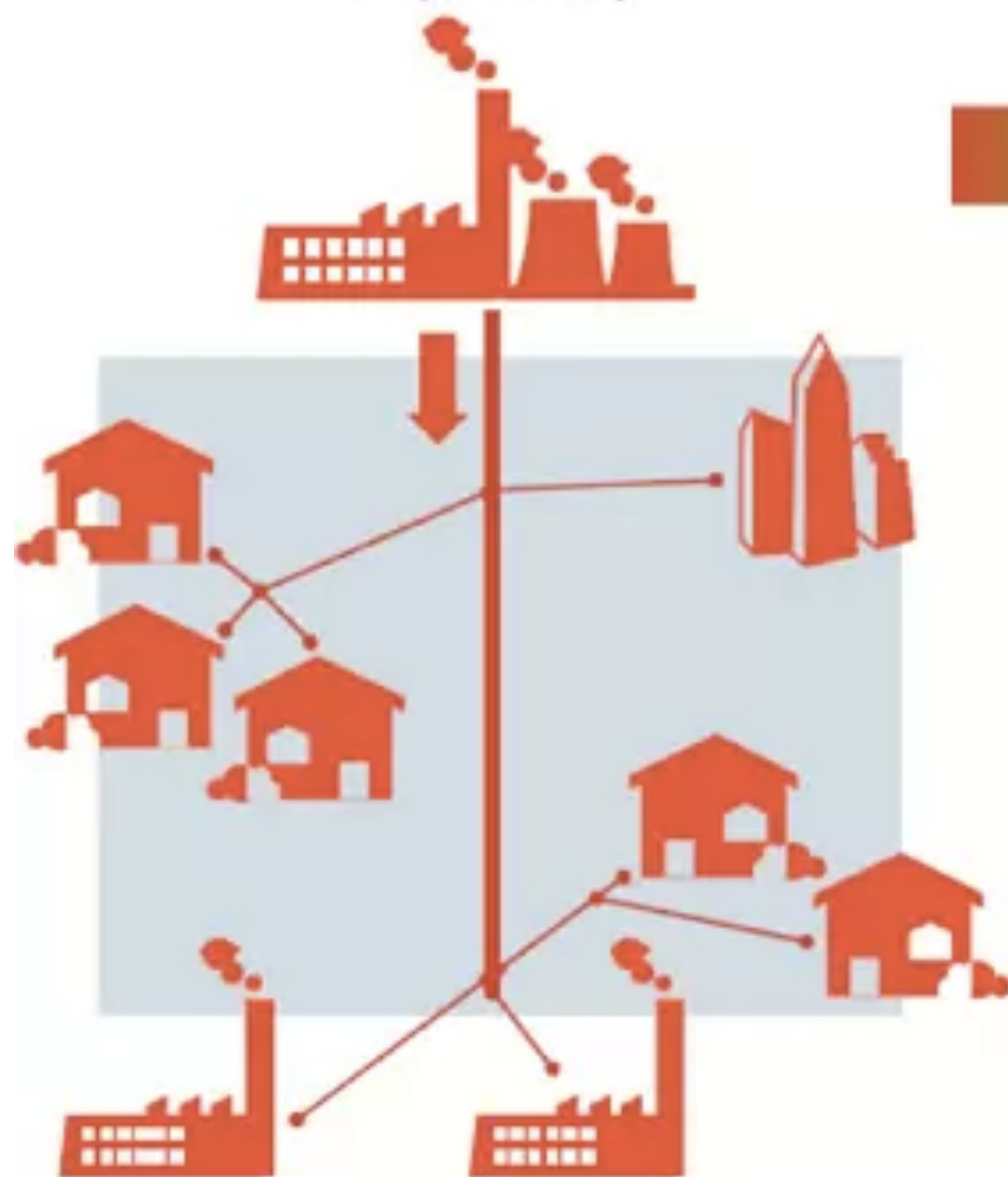






remote energy audits

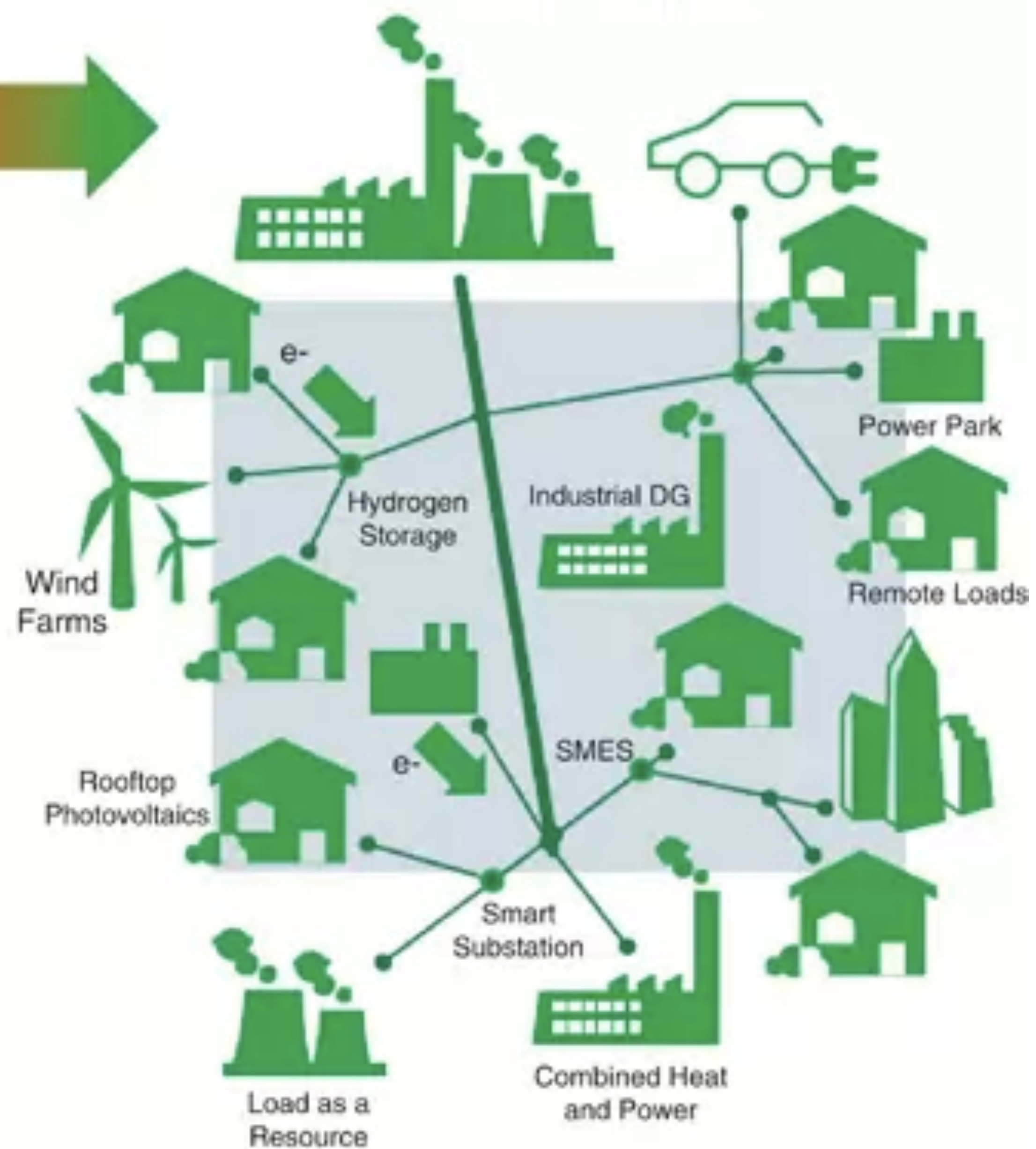
Today's Electricity



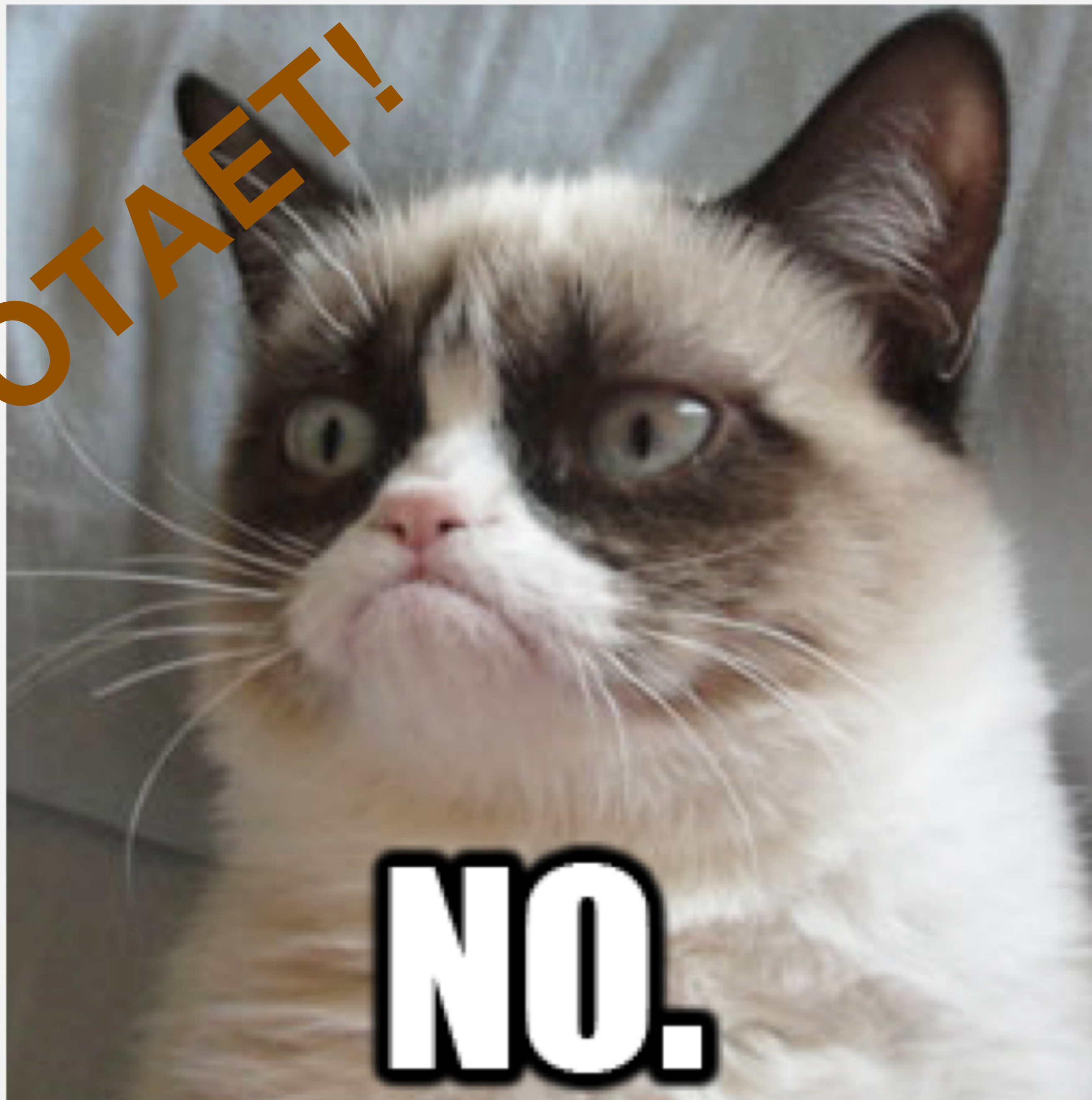
Grid Modernization



Tomorrow's choices



НЕ
СРАБОТАЕТ!



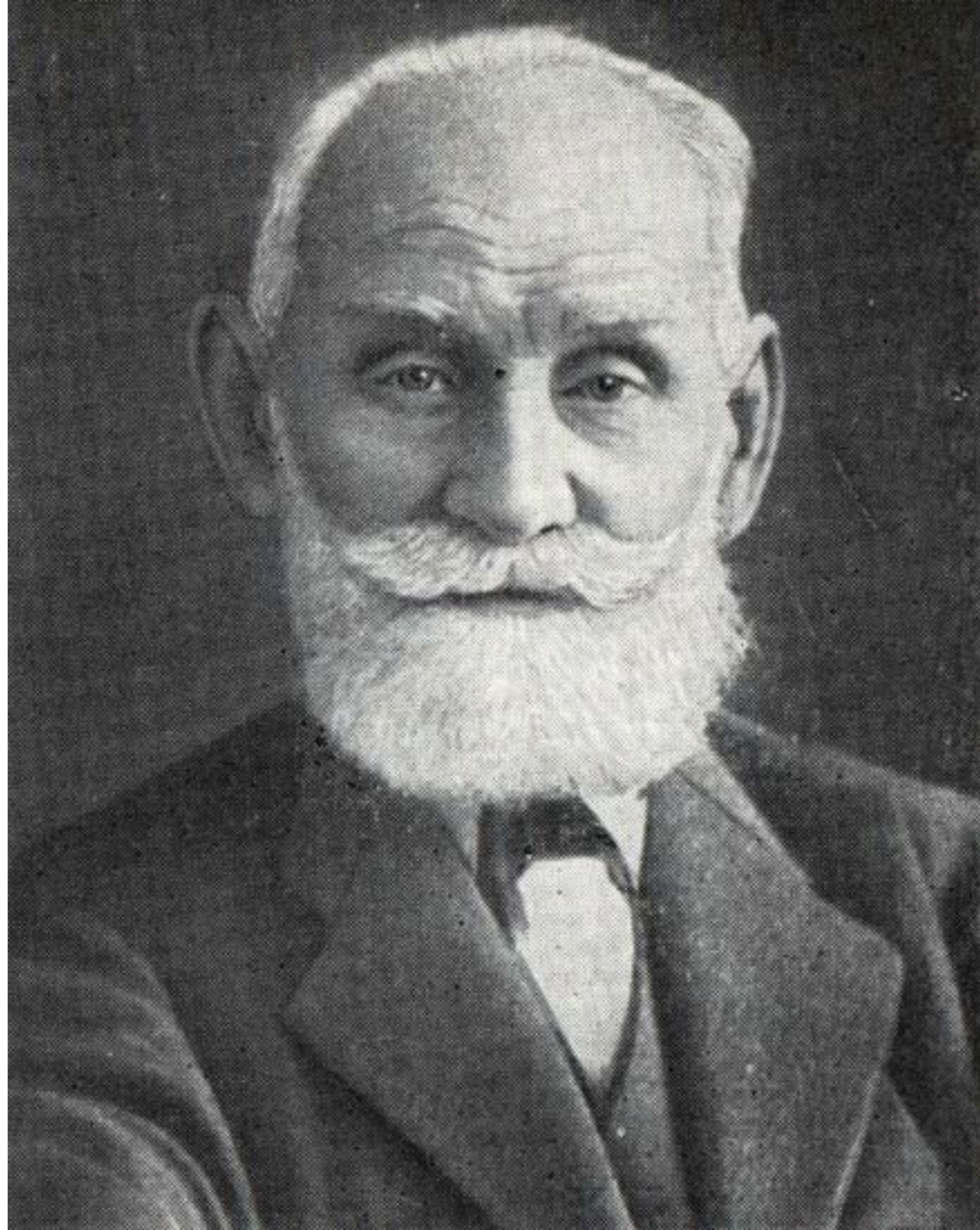
NO.



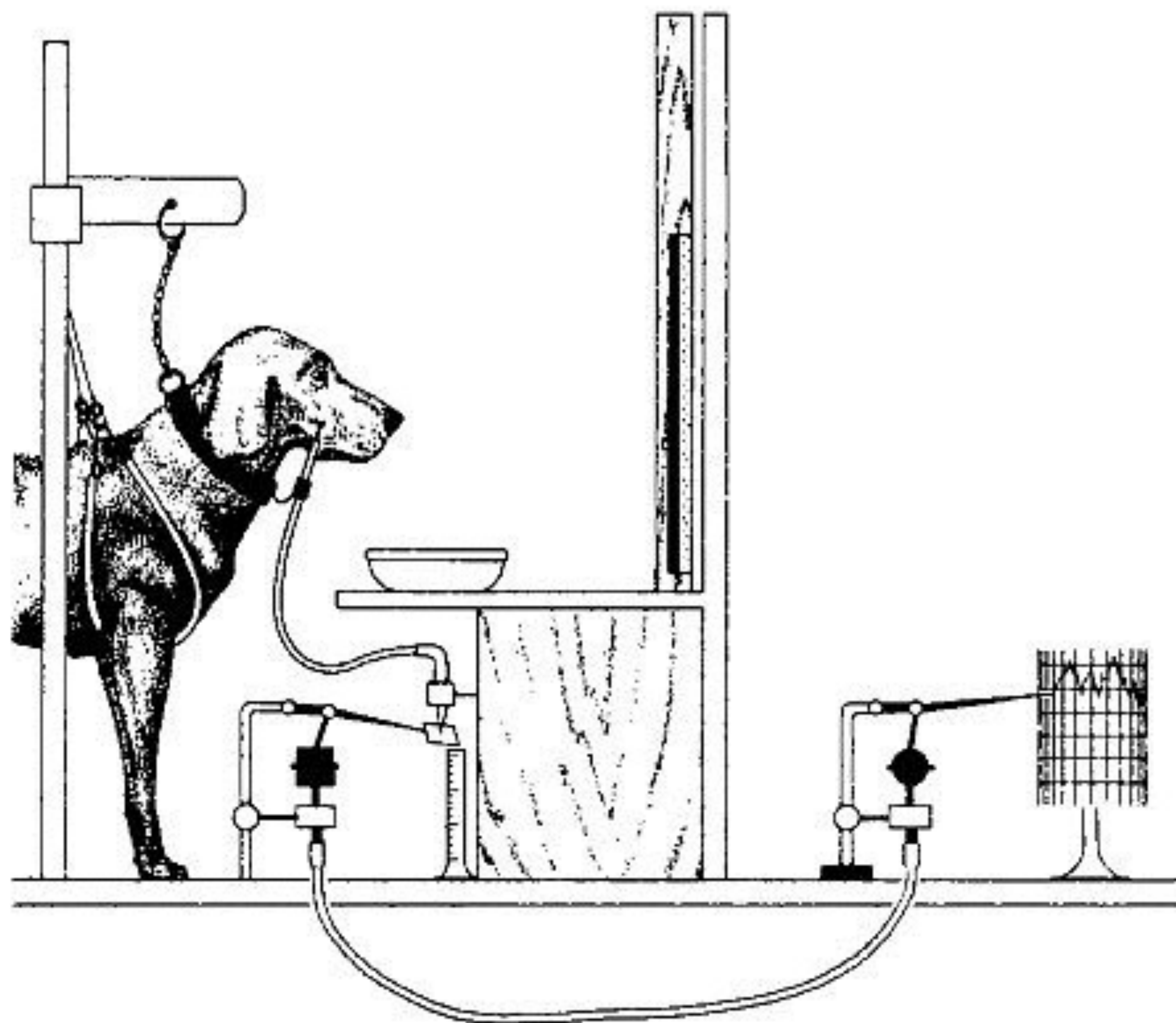
**Programming
humans**

Програміст живих істот №2

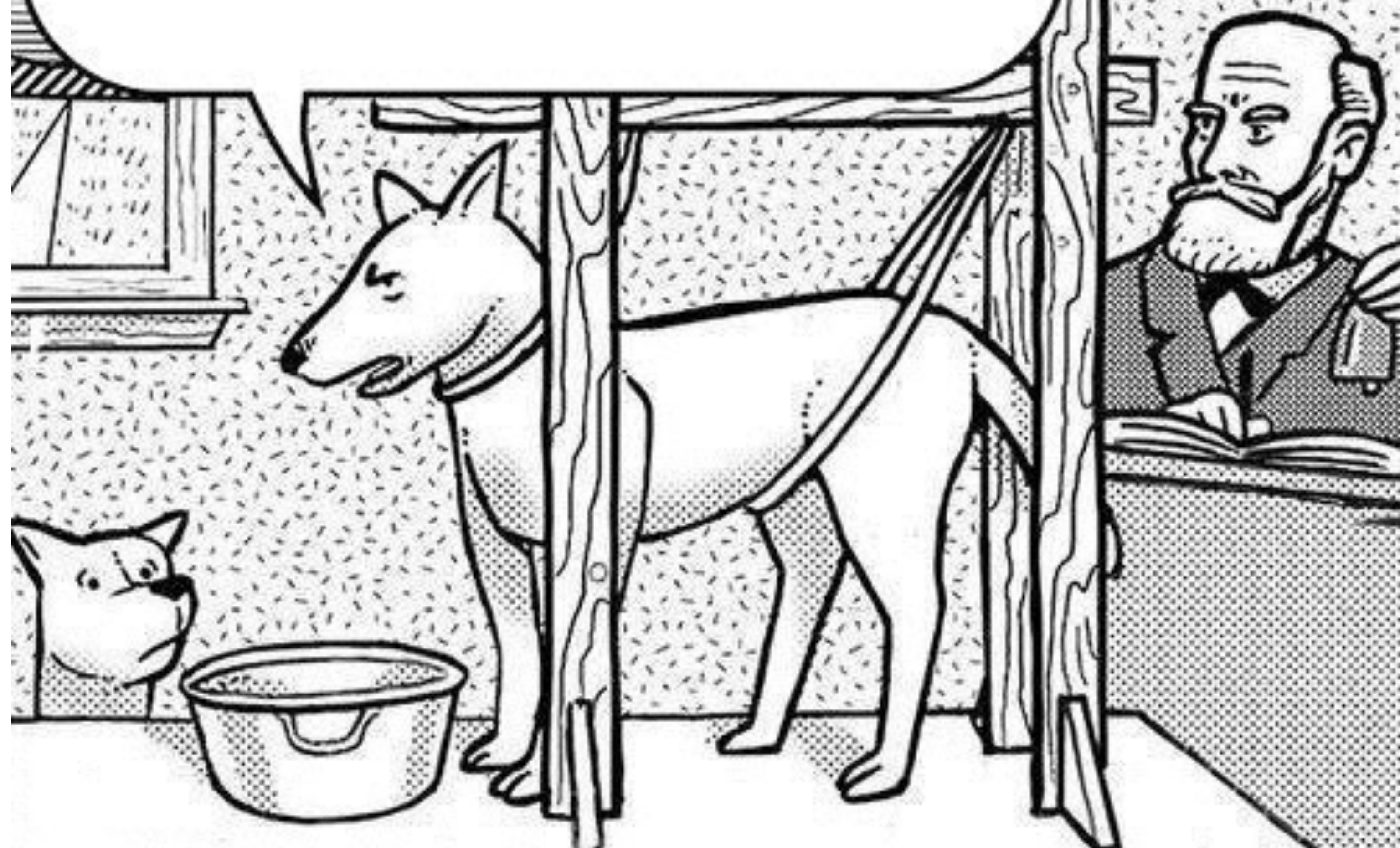




Програміст ЖИВИХ ІСТОТ **№1**

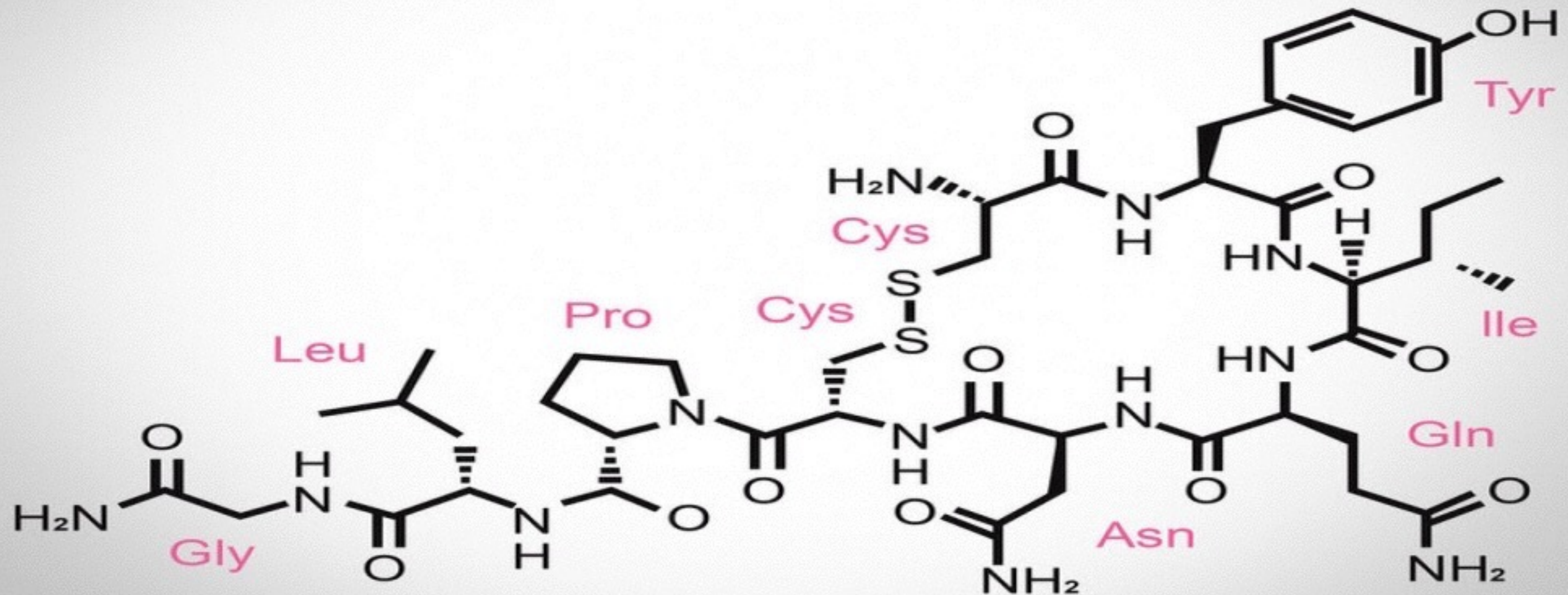


Смотри, как надо
Павлова дрессировать:
Пущу слюну, —
Он хмыкнет и давай писать!





this is love.



Converting peer pressure into savings

OP@WER

Welcome, Garrett · [Account Settings](#) · [Sign Out](#)

[Similar Homes](#) · [Friend Rank](#) · [About Me](#)

How I did in **October** ▼

Room for improvement

⚡ Used 12% more than September

👍 Used less than yearly average

Efficient homes ?
\$35.12
300 kwh

All homes ?
\$37.12
312 kwh

 **My home**
\$43.00
340 kwh

An easy way to save:



Turn off lights when not needed

👤 1,021 people do this

Show more tips >

 **Join a group, compete together!**

Find people with similar interests to drive efficiency at home.

Search groups >

You are being compared to to **214,827** homes with these characteristics:

↕ 0-500 sq ft

❄ Central A/C

💧 No fireplace

📍 NE Climate

[Edit my home information](#)

UTILITY CO. ENERGY REDUCTION GAME: RANKINGS

YOUR NETWORK



2012 kWh: 1879
2011 kWh: 6479

You're on track to save about \$432 compared to 2011 energy expenses

kWh
2012



Company Cycle Challenge



Current Level: Elite

Total Weight Loss **16** lbs

Last Ride

167

AVG SPEED
22

39:45

12.4 M

Ride Log

Rides this week **2**

Rides this month **6**

Personal Rides: **9**

Progress: **3**

Progress Path

- + .5 Amateur Night Ride
- +1.0 Hollywood Hills Descent
- +1.5 Malibu-to-Redondo Intermediate Ride

RIDE POINTS TO GO TO REACH ELITE LEVEL

2.5

Upcoming Progress Rides

- 7/14 +1.0 4th of July Elysian Park Ride & BBQ
- 7/21 +2.5 PCH Elite Challenge
- 8/4 +.5 Amateur Night Ride
- 8/18 +3.0 ML Baldy Apex Climb

SPEEDTRACKER

Email	Unread	Read	Deleted
	32	9,452	5,025
Meetings	Upcoming	Attended	
	12	74	
Completed	Tasks	Lessons	
	112	5	
POINTS EARNED: 413		LEVEL: 3	

Ride Chat: Olivia M.

- Ricky A: Hey, I think I'm ready for the Mt. Baldy ride. R.U. doing it?
- Olivia M: Hi. Yeah When I finish I'll be at Super-Elite level and have a chance at that new Jarvis Xanth Comp Carbon drawing...
- Ricky A: I've gonna catch you!
- Olivia M: Bring it!

Current Missions

- Client Proposal 94
- Blog for John 87
- Save Cat 42
- Company Health 50
- Talker 67

Incentives & Rewards

- Call reduction time 100
- Sales 200
- Posts 15
- Weight Loss 65
- Speedtracker 100

Team & Network

- Challenges 100
- Applause awards 500
- Friends 25
- Referrals 1,000
- Alliances 52

Talknet Ricky Anderson's Chatlog

Posts: 391
Reactions: 1,625
Likes: 874

Comments: 6,589
Responses: 560
Likes: 1,345

Edits: 232
Re-edits: 42

Ricky: Just heard that the proposal was accepted. That makes 3 this month!

Olivia: Fantastic. Way to go Ricky. Dismiss me 10:00 AM. You need rest!

VIRTUAL CURRENCY
\$1,298
Points: 112,987

Social Network

- Hey, lets ride tonight!
- Can you help me out with this project?
- Leaderboard list:
1. Sarah
2. Terry
3. Ricky A.
4. John W.
5. Barry
- Challenge Alliance Meeting tomorrow at 2:15p
- What's up? Lucy?
- Who has the client deck at the moment?

Badges Earned



Alex Laskey @ TED

Level -2	Level -1	Baseline 0	Level +1	Level +2
				

 **PASS THE CAN** ON 

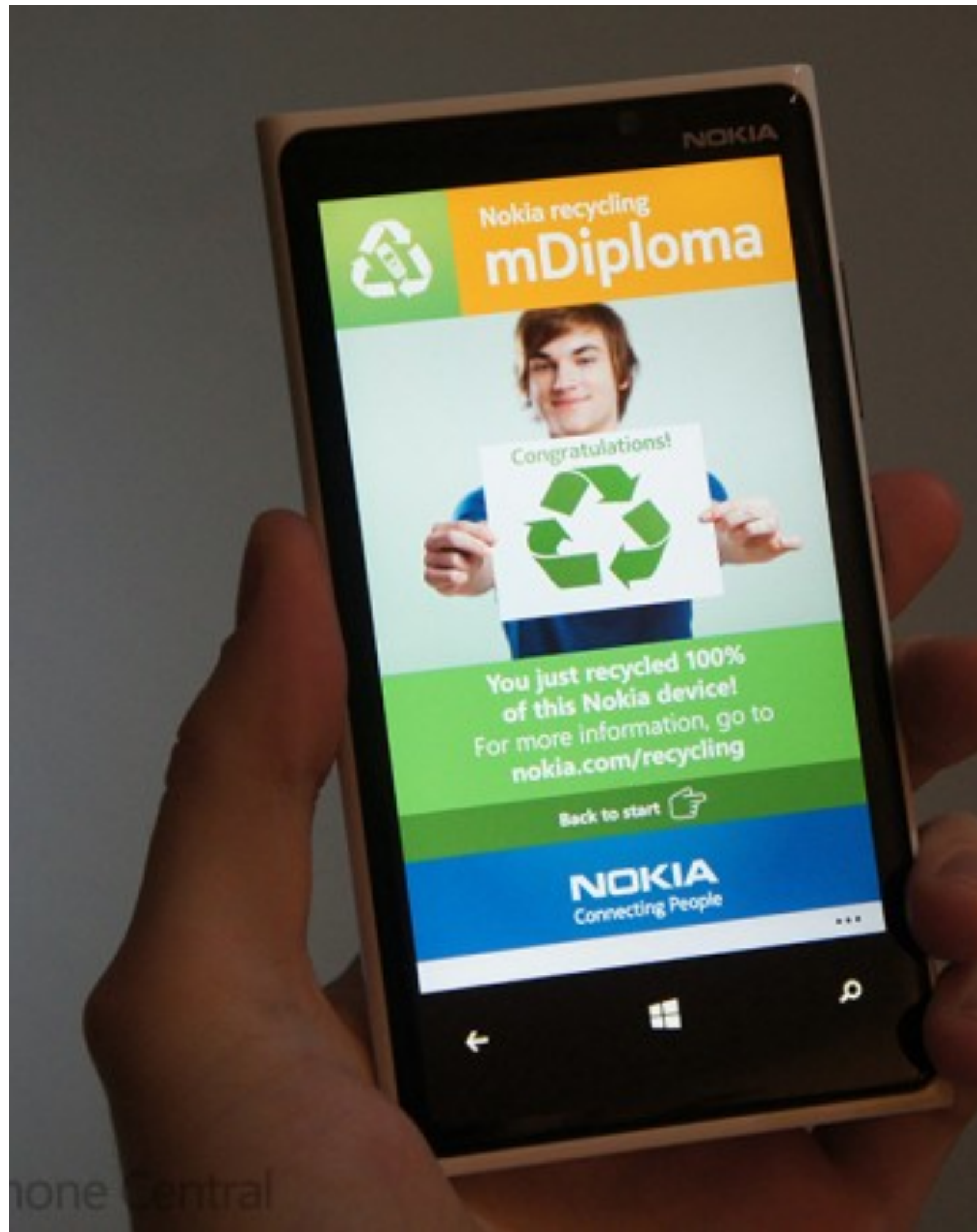


Use your social network to make a **big impact** on real-world recycling.

[GET STARTED](#)

Donation Recipients:



Monetizing sustainable behavior





Incentive-based recycling



Earn Points

Take everyday green actions like recycling household goods and cutting back on your energy use.



Get Rewards

Take everyday green actions like recycling your household waste.



Live Green

Learn how you and your family can tread more lightly upon the world.

Big Rewards for Taking Small Actions

It's our world, let's better it together.

[Learn More](#)

Mosaic: Crowd-investing solar energy



This Is What People Power Looks Like

Mosaic's newest solar project has investors from across the U.S.



"I grew up near Wildwood and am excited to be one of the people powering my community's solar project."



INVESTORS

823

Representing 359 cities in 42 states, ages 18 - 86



INVESTED

\$1M+

Investments ranging from \$25 to \$50,000



YIELD

4.5%

Good luck getting that with a Treasury or muni bond

Join us. Put your dot on the map at joinmosaic.com





Oliver Lünstedt
carzapp CEO



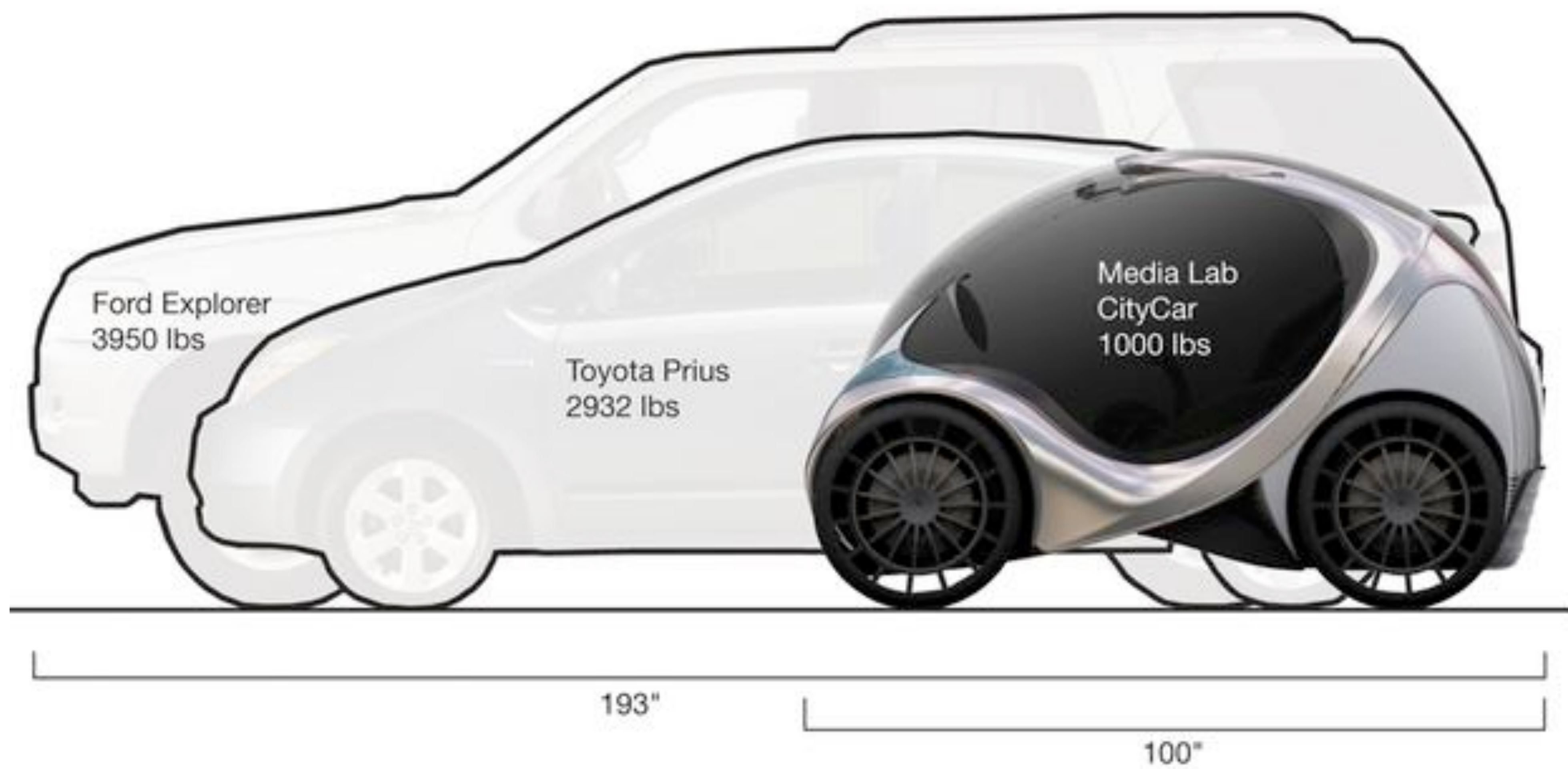


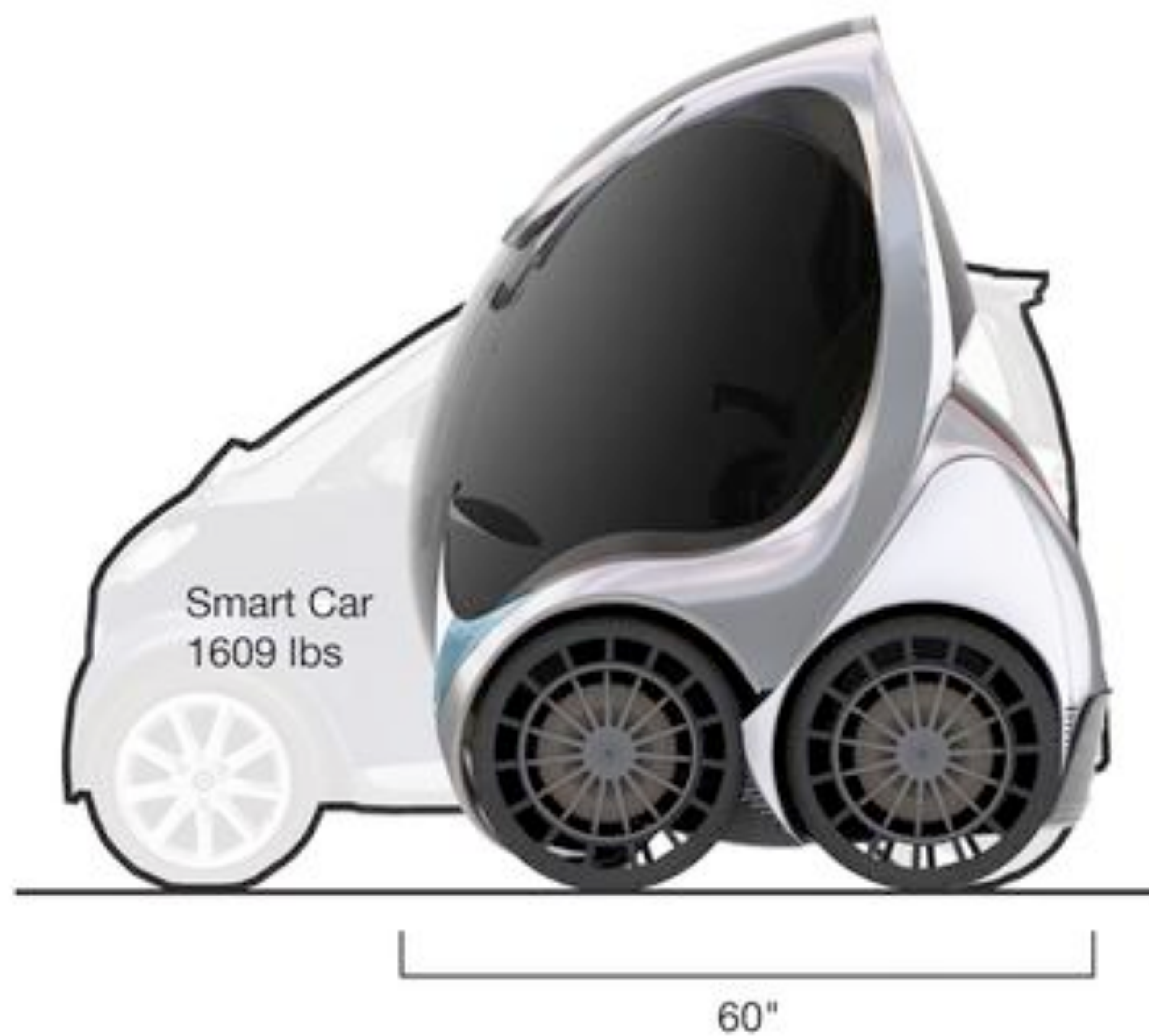
Google™

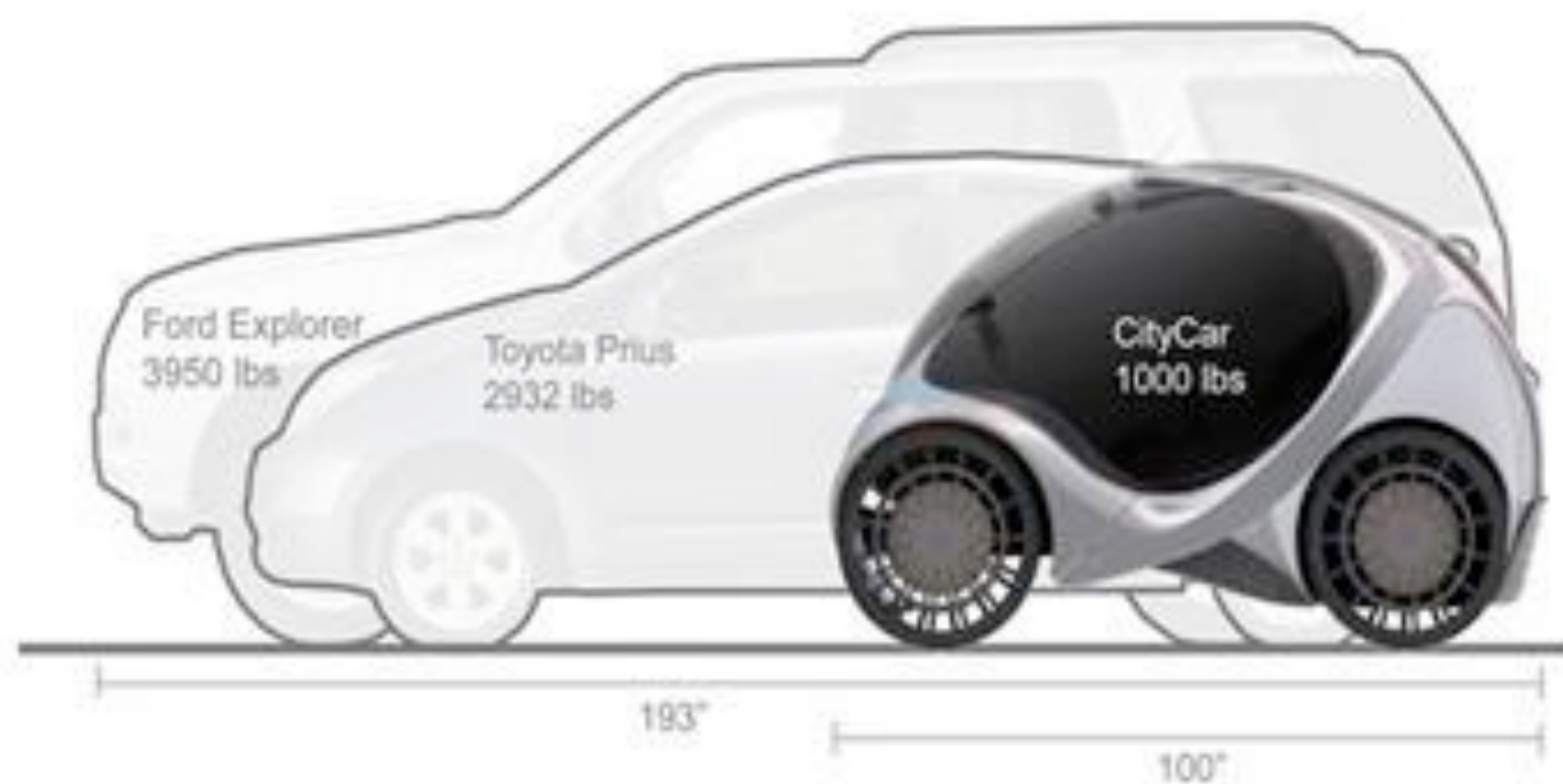
self-driving car

HYBRID

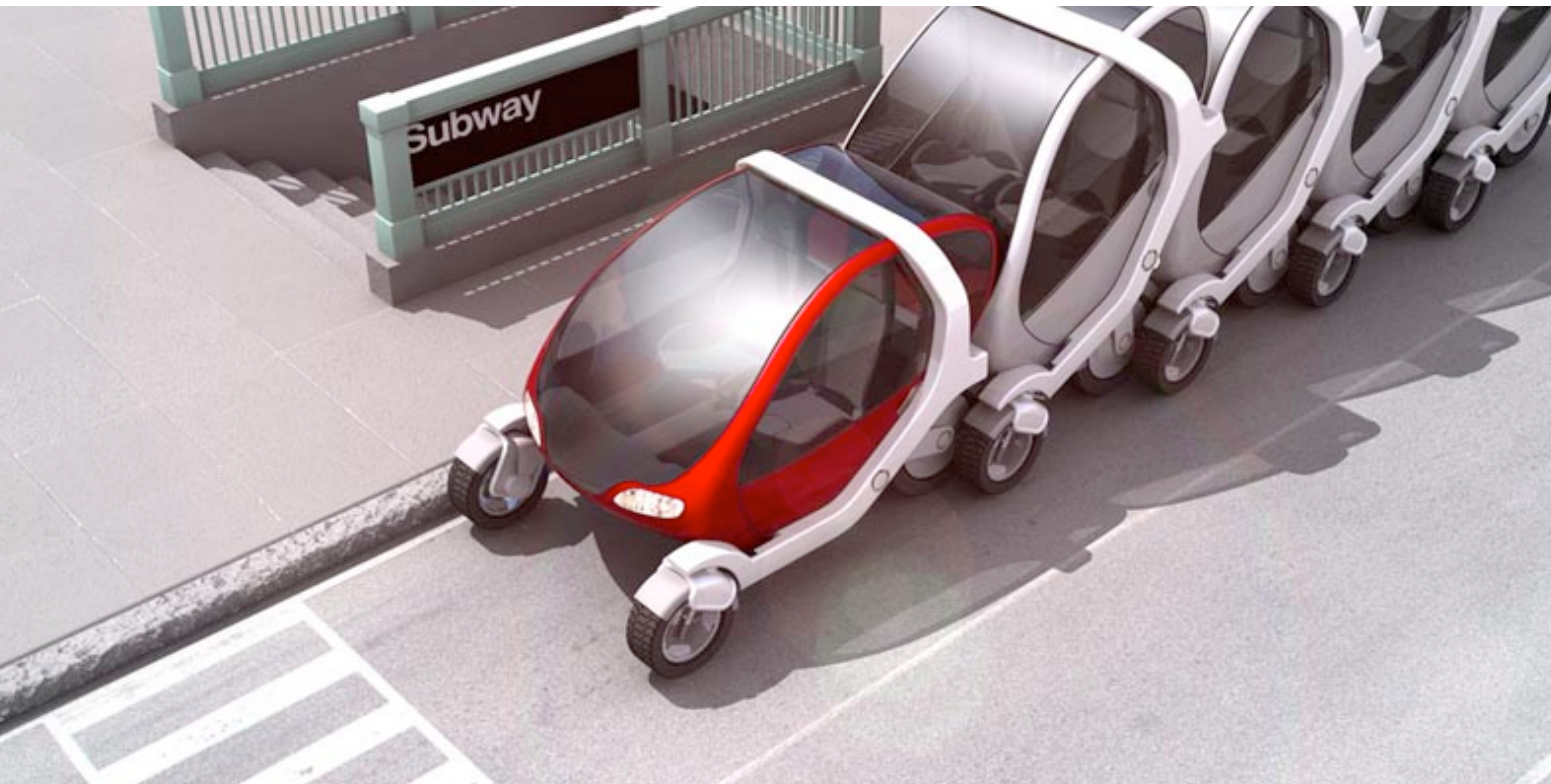




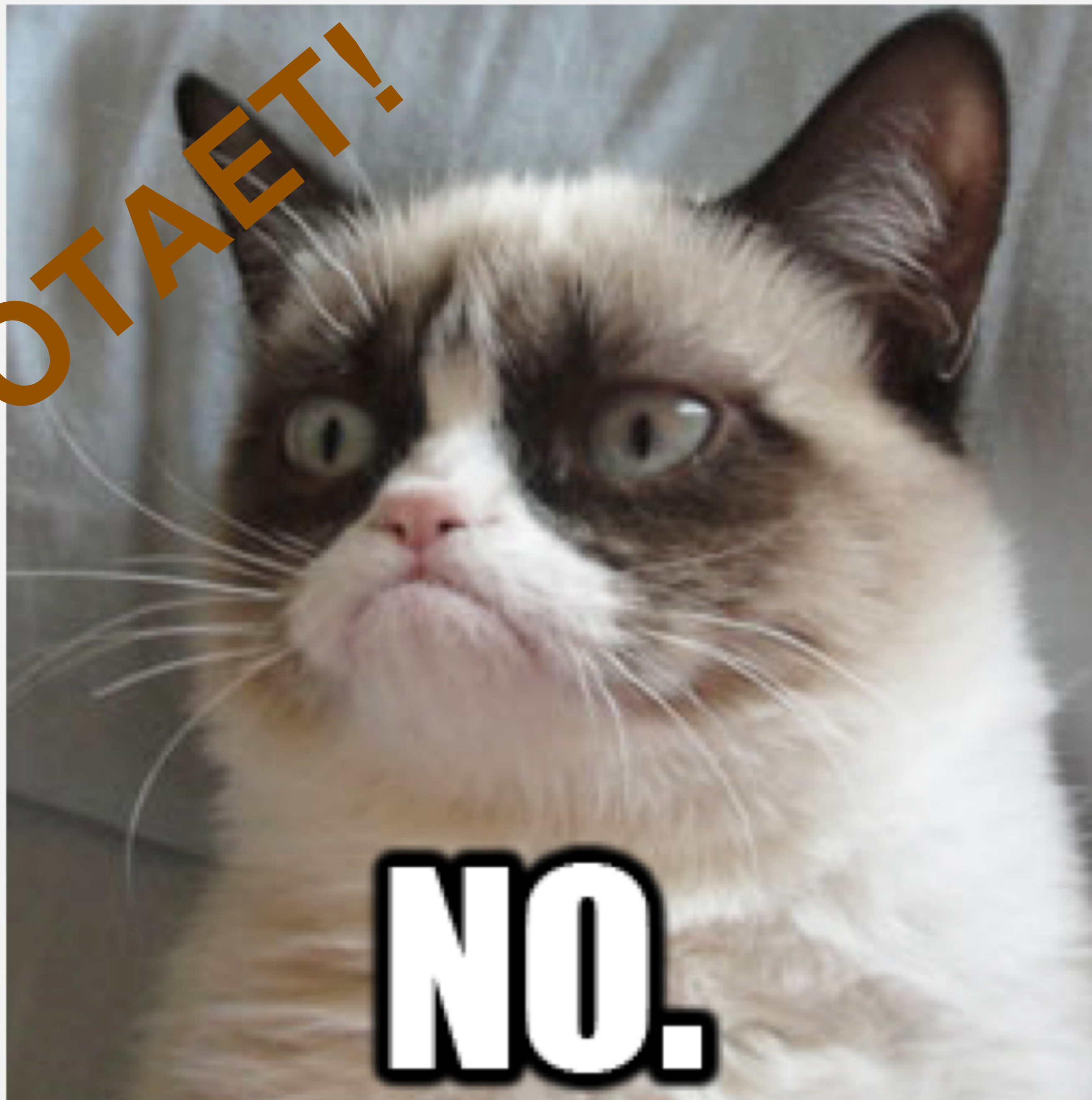








НЕ
СРАБОТАЕТ!



NO.



not a phone



a phone





Коли ви востаннє
користувалися land-line?

Web 1.0 > Web 2.0 > Internet of Everything





SolarCity

SCTY
NASDAQ
LISTED

NASDAQ



Energy Storage Product Overview



Product Line	Automotive	Residential	Commercial
Power/Energy	310 kW / 85 kWh	5 kW / 10 kWh	200 kW / 400 kWh+

 Listed 
Outdoor Rated 

Compact, Safe and Durable

SolarCity is making the latest advancements in battery technologies available to you through our partnership with Tesla Motors. Only SolarCity's home backup system uses technology engineered by Tesla, leveraging their expertise in developing battery technologies for premium electric vehicles.

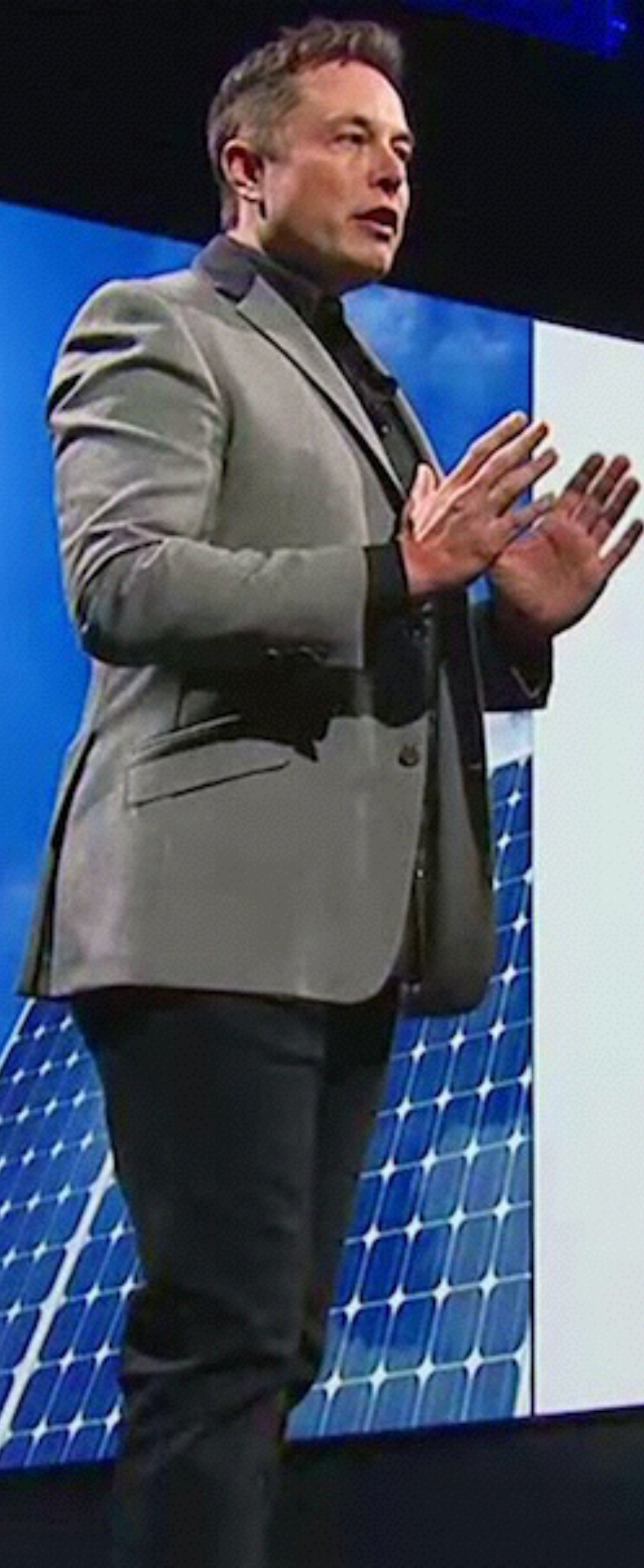
Tesla's long history of research and development has enabled a cost-effective, wall-mounted storage appliance that is small, powerful and covered by a long lasting full 10 year warranty.

The actual battery unit is about the size of a solar power inverter, and will be mounted on the wall in your garage, or outside your home near your electrical panel.

Be Prepared for Anything







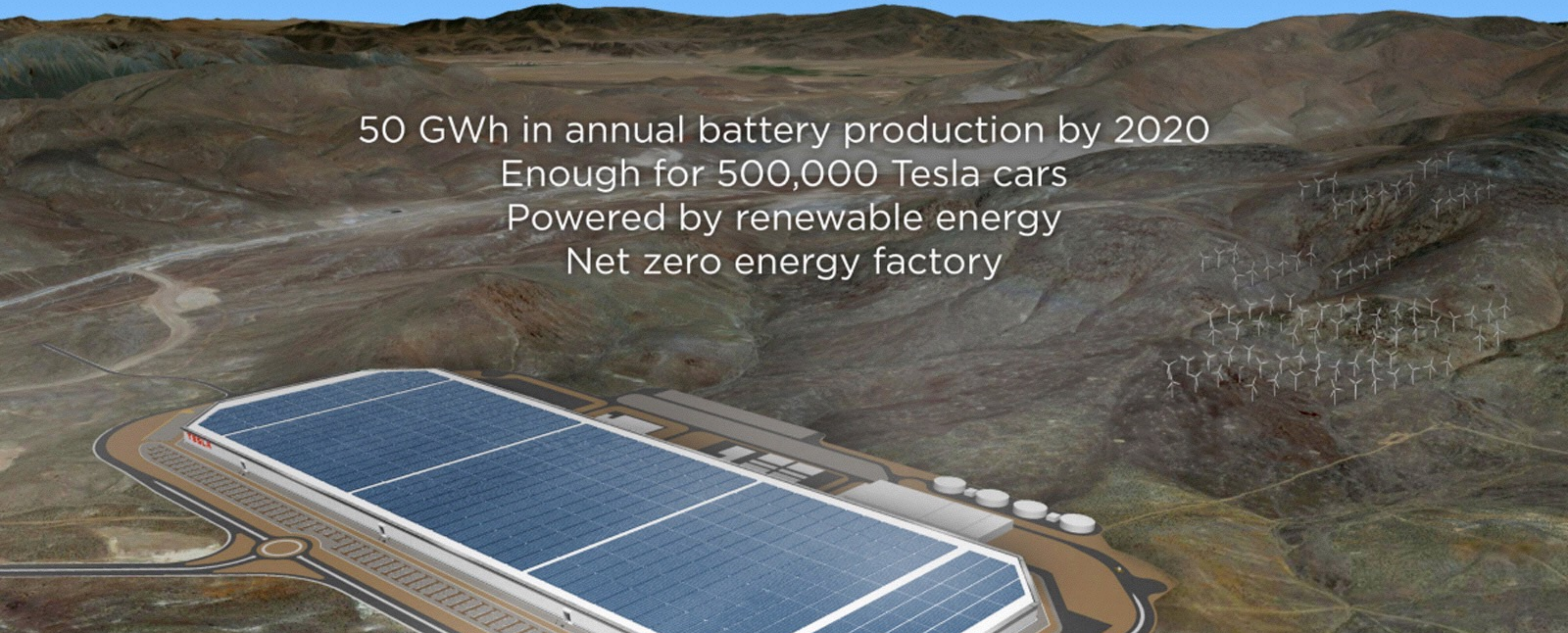
10kWh





TESLA GIGAFACTORY

50 GWh in annual battery production by 2020
Enough for 500,000 Tesla cars
Powered by renewable energy
Net zero energy factory



[SOLAR](#)[GRID EDGE](#)[EFFICIENCY](#)[ENERGY](#)[PODCAST](#)[VIDEO](#)[RESOURCE CENTER](#)[GTM EVENTS](#)[GTM RESEARCH](#)[ABOUT](#)

23



326

Tweet



Подс

36

+1

435

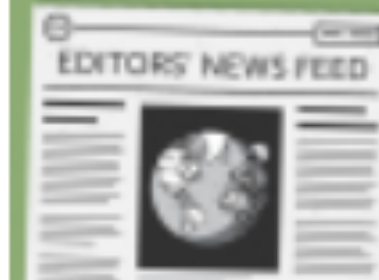
Share

ARTICLES: POLICY



PREVIOUS ARTICLE
Bank of America Reduces
Its...

NEXT ARTICLE
Why It Took 36 Years to
Build...



Hawaii Passes Legislation to Go 100% Renewable



An update on state-level clean energy news from around the country

Julia Pyper
May 12, 2015

In the last few weeks, state-level stakeholders around the country have been busy reforming renewable portfolio standards, proposing changes to net metering policies, and studying the potential effects of the EPA's Clean Power Plan. Also, in an unprecedented move, the Hawaii state legislature voted to make electricity generation 100 percent renewable by 2045.

More on these developments in our state dispatch below.



MOST COMMENTED

MOST POPULAR

01 Ditching Net Metering Is In The 'Best Interest' Of Solar, Say MIT Economists 101

02 Test-Driving The Toyota Mirai: Will A Bet On Fuel-Cell Vehicles Pay Off? 76

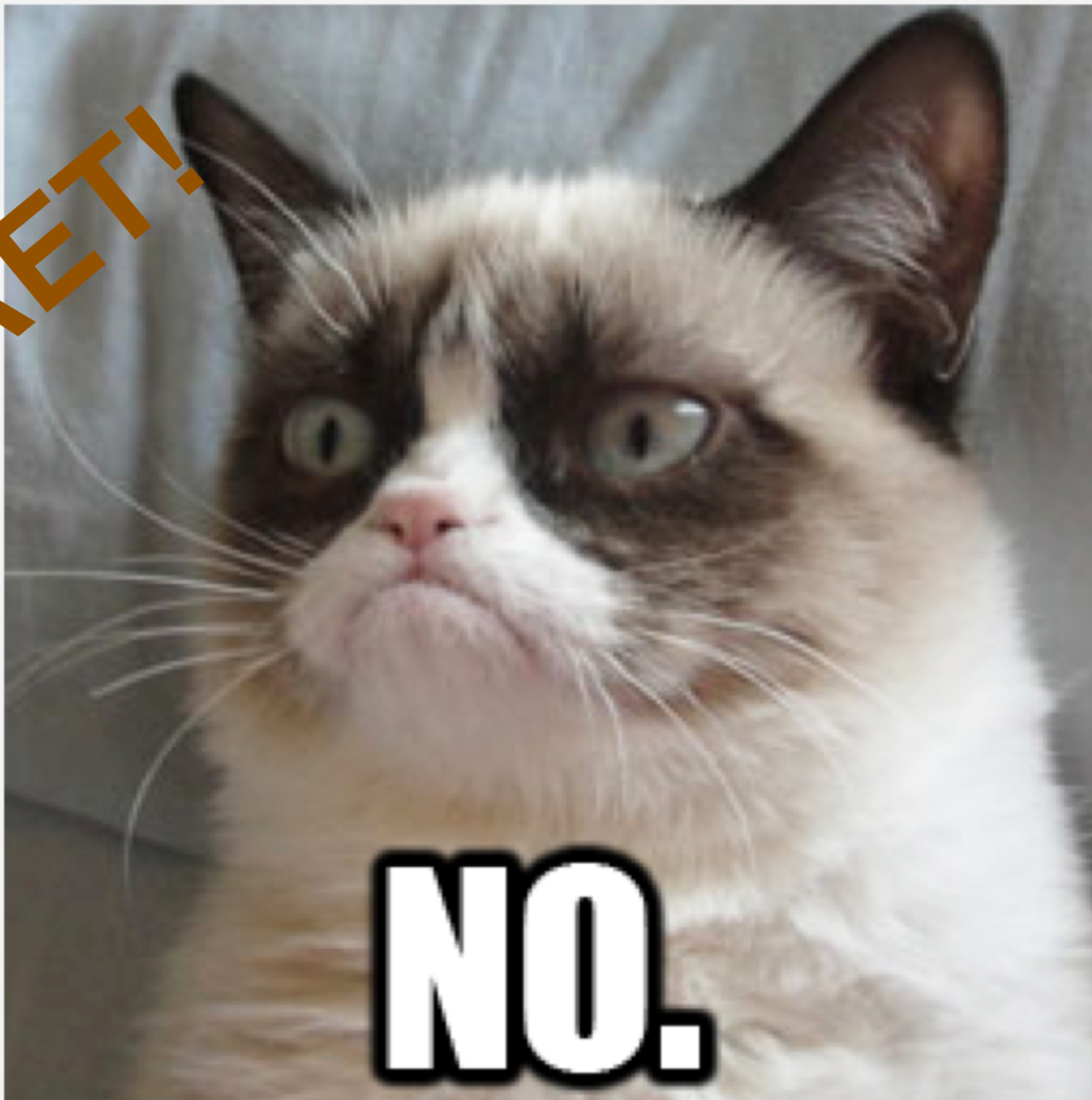
03 Is The US Market Ready For Distributed Batteries Like Tesla's Powerwall? 62

04 SolarCity's Plan For Tesla Batteries: Share Grid Revenues With Homeowners 35

05 Peak Oil In An Era Of Fossil Fuel Abundance 26



НЕ
СРАБОТАЕТ!



NO.





Розумний споживач



**Від енерговатника
до енергопатріота**

Energy
democracy



**ENERGY GEEKS
ARE SEXY**

Який ваш енергостарт?

| чого ж ви чекаєте?

Дякую! Творіть!

Роман Зінченко

+380 67 4492876

roman@greencubator.info



greencubator є на

twitter



YouTube

skype™



slideshare
Present Yourself

**Всем
КОТИКОВ!**



APPLAUSE

