Accumuli e flessibilità per un sistema elettrico più competitivo e rinnovabile

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EVP Consulting

April 15, 2026

Renewables & BESS have captured full attention in recent years…

Il Sole 24 ORE

Accumulo di energia, così l'Italia mette in sicurezza le rinnovabili

la Repubblica

Fonti rinnovabili, Italia leader in Europa nelle aste solari

ANSA.IT

Al via il più grande impianto di accumulo a batterie in Italia

Il Sole 24 ORE

Rinnovabili, in Europa nel 2025 hanno generato più elettricità delle fonti fossili

Il Sole 24 ORE

Rinnovabili, il mercato stima investimenti per 8-10 miliardi in Italia nel 2026

ESG NEWS

BESS, come i sistemi di accumulo a batteria stanno cambiando il futuro dell'energia

30 Dicembre 2025

…but pose two main challenges to Italian power system

#1

#2

...but pose two main challenges to Italian power system

#1

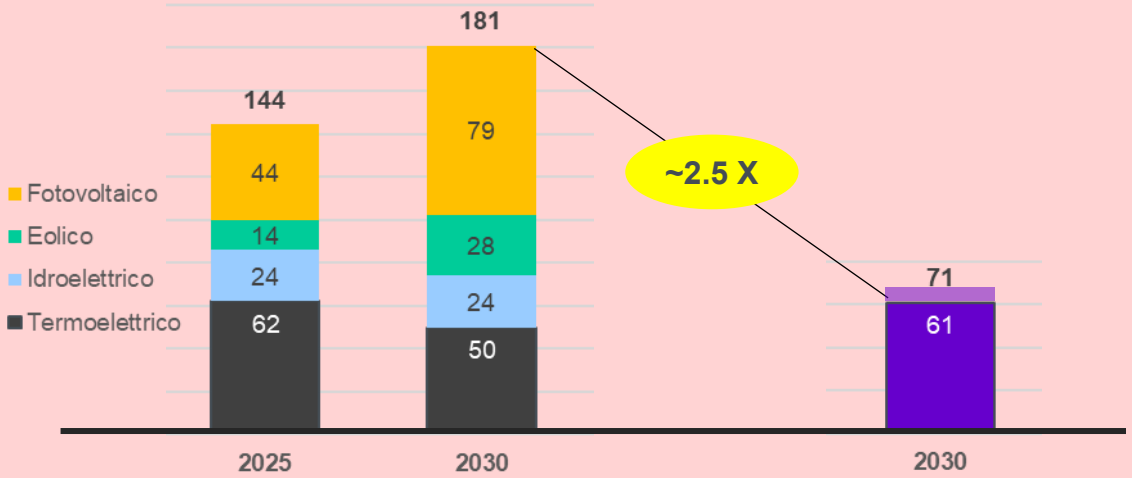
ADEGUATEZZA

#2

...but pose two main challenges to Italian power system

#1 - ADEGUATEZZA

Generation Capacity [GW] (1) **Peak Demand 2030 [GW]**



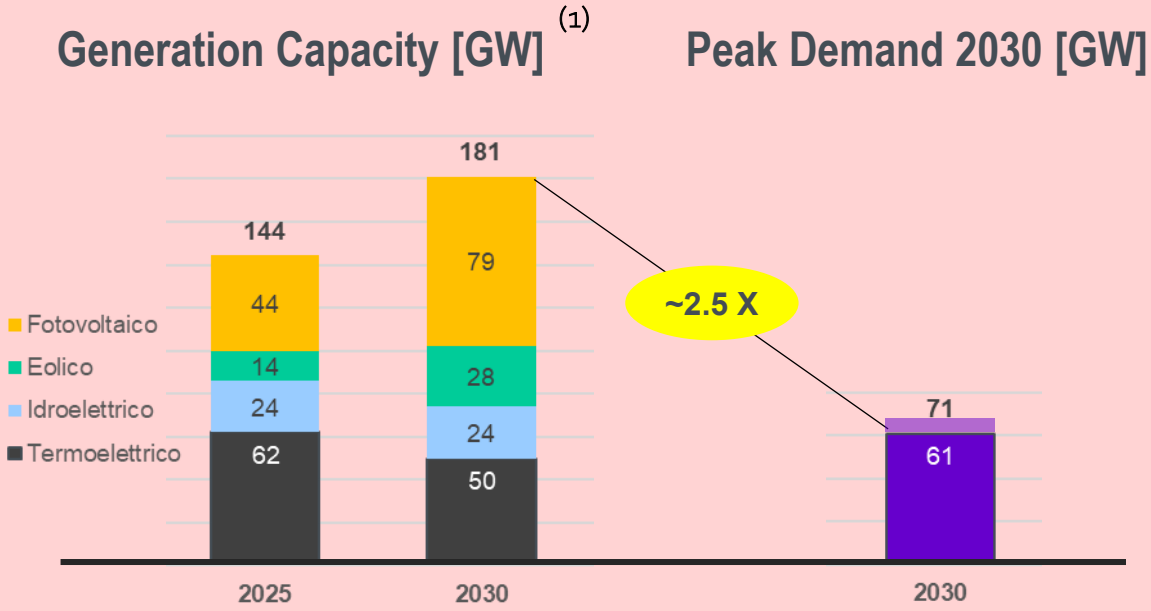
- **+50 GW** RES, **-12 GW** Thermo in **5 years**
- 50 GW RES = **~7 GW** firm capacity, net **–5 GW**
- Reason #1 for massive **Storage adoption**

(1) Sources: Terna, CESI elaboration on "2030 Policy Scenario"

#2 FLESSIBILITÀ

...but pose two main challenges to Italian power system

#1 – ADEGUATEZZA



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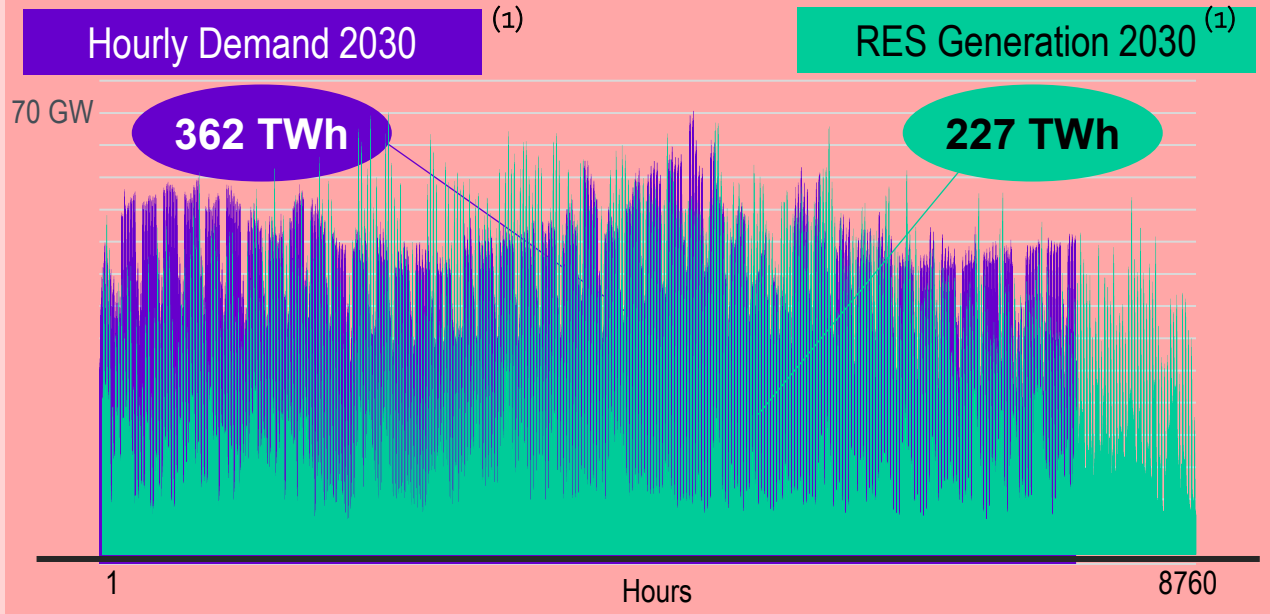

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...but pose two main challenges to Italian power system

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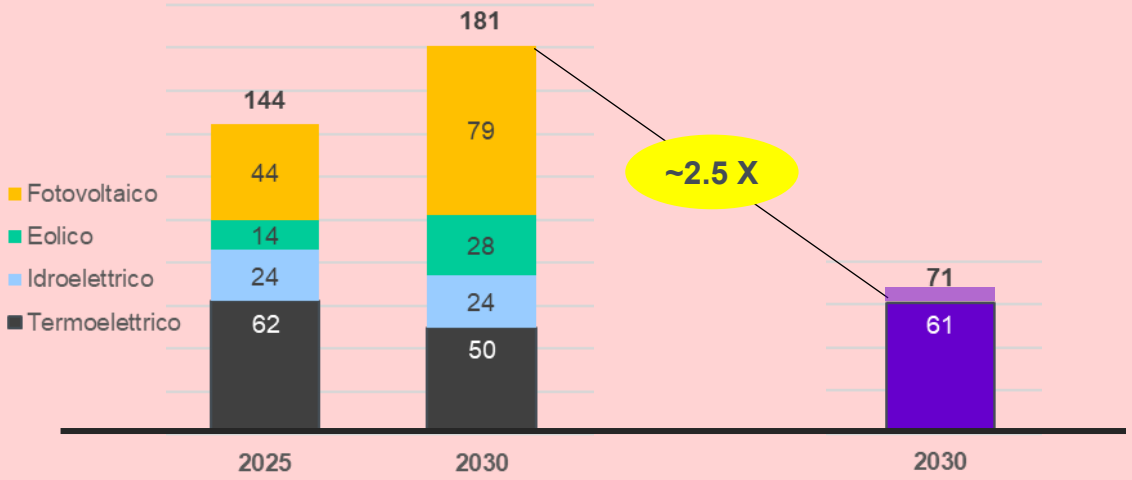

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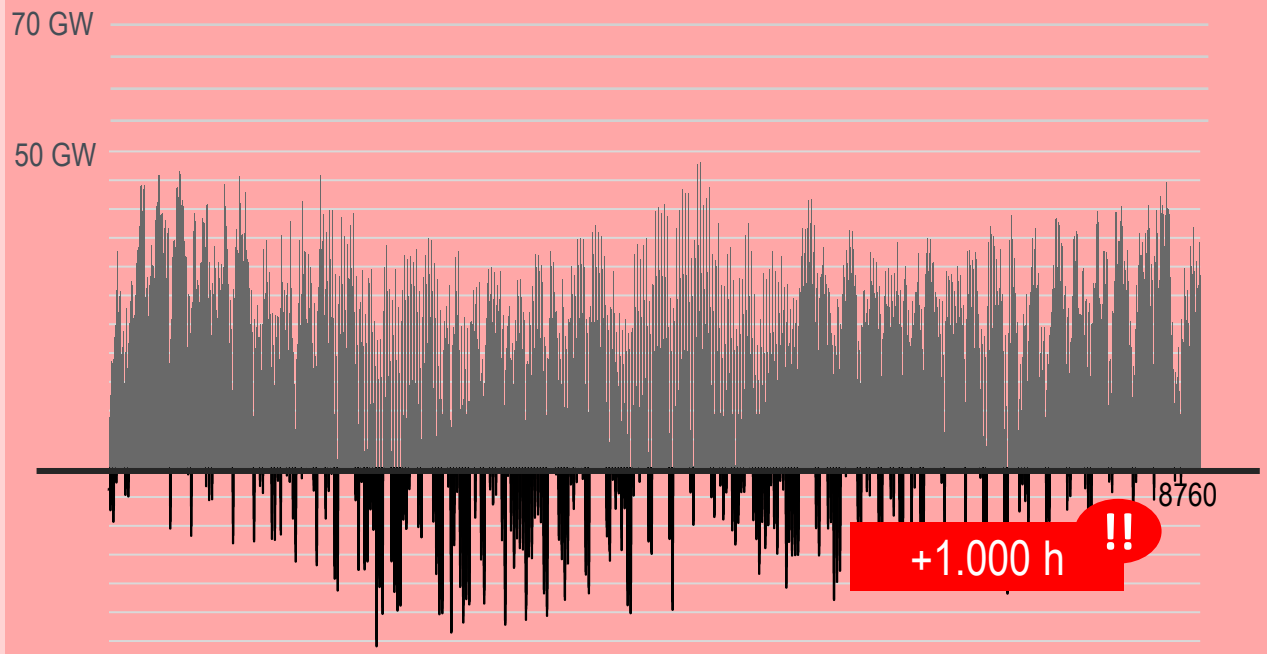
#2 – FLESSIBILITÀ

Residual Load 2030 (1)



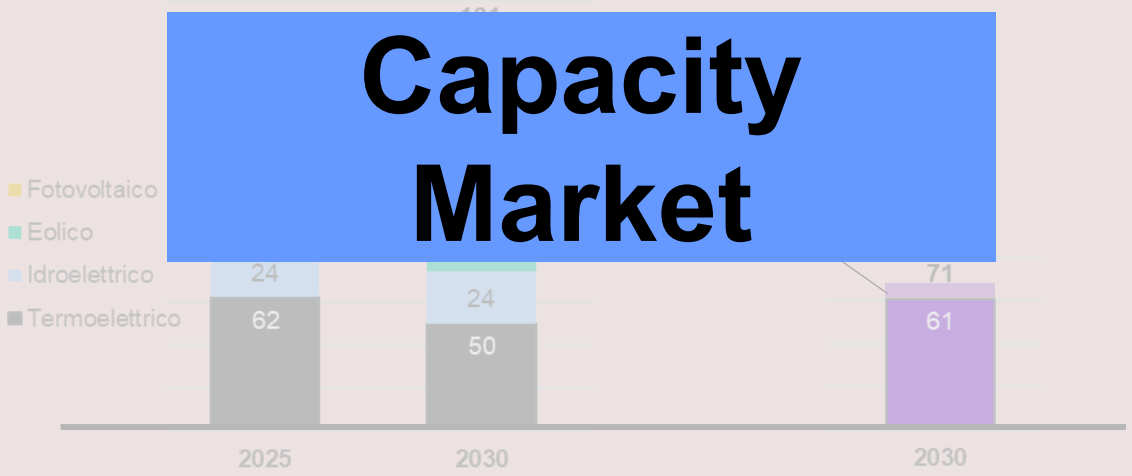
- **Overall ~25 TWh** of storage necessity (2)
- 20% Hydro storage and **80% BESS (~20 TWh)**
- Reason #2 for massive **Storage adoption**

(1) Sources: Terna, CESI elaboration on "2030 Policy Scenario"
(2) Refers to storage in "consumption" mode

A 3-market forward model to mitigate risks

#1 – ADEGUATEZZA

Generation Capacity [GW] (1) Peak Demand 2030 [GW]



- **+50 GW** RES, **-10 GW** Thermo in **5 years**
- 50 GW RES = **~7 GW** firm capacity, net **–3 GW**
- Reason #1 for massive **Storage adoption**

#2 – FLESSIBILITÀ

Residual Load 2030 (1)

- **Overall ~25 TWh** of storage necessity
- 20% Hydro storage and **80% BESS (~20 TWh)**
- Reason #2 for massive **Storage adoption**

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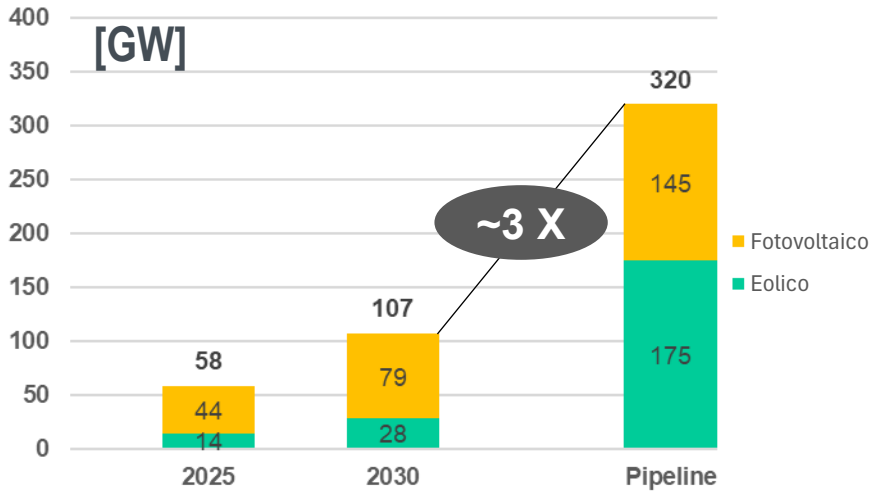
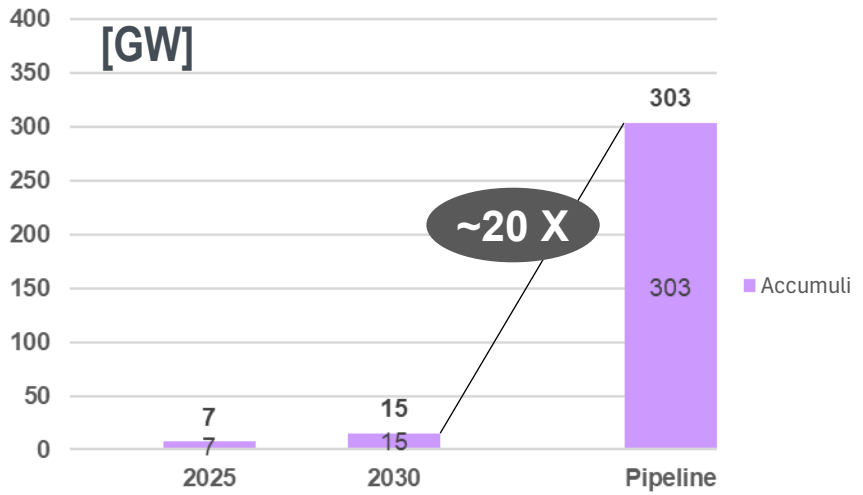
But how much RES/BESS is really needed vs requested?

RES 2030 vs Pipeline (1)



BESS 2030 vs Pipeline (1)

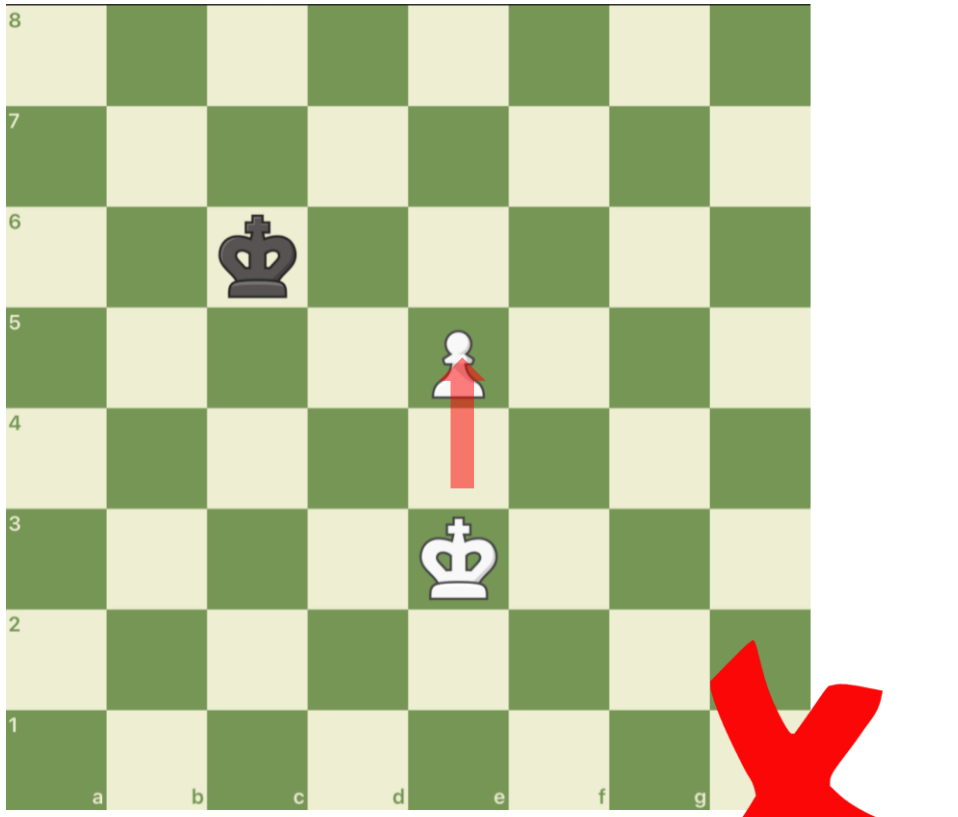


- **3 times** as much FER as needed in 2030, **~6.000** connection requests (as of 02/2026)
- **20 times** as much BESS as needed in 2030, **~3.600** connection requests (as of 02/2026)

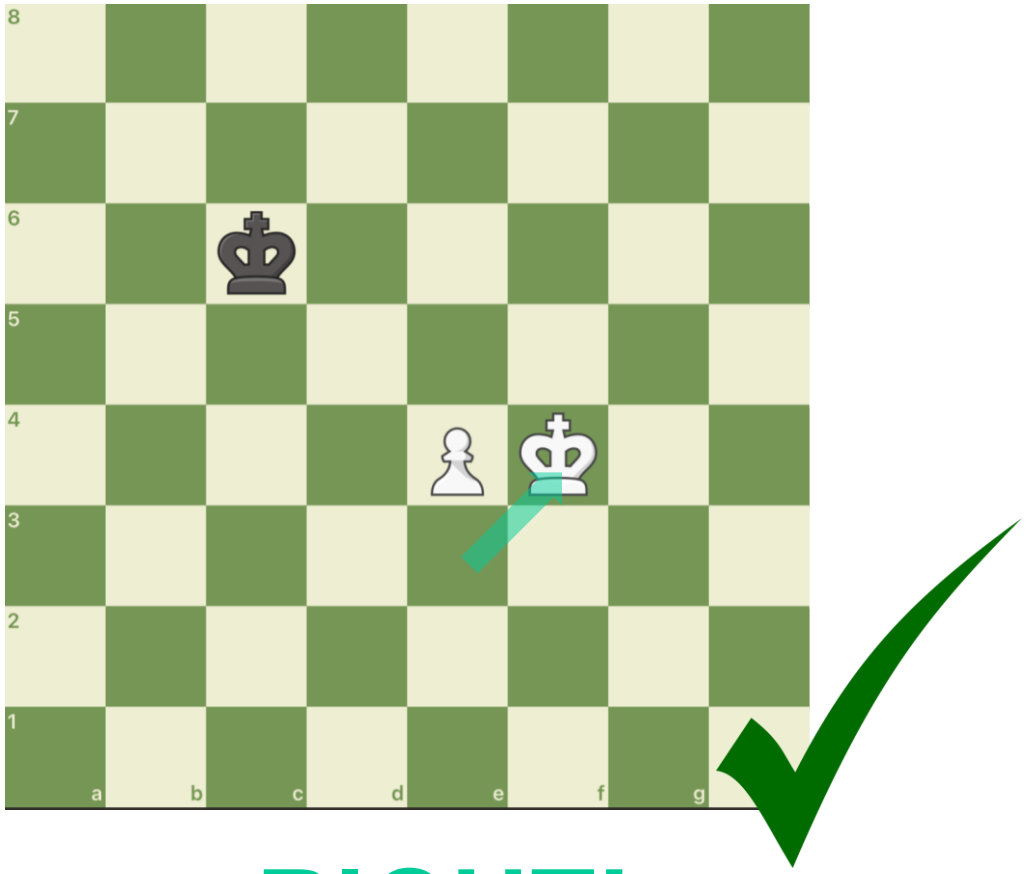
What makes a connection request a successful request and why?

(1) Sources: Terna, CESI elaboration, pipeline as of February 28, 2026

How easy it is to make a wrong move?

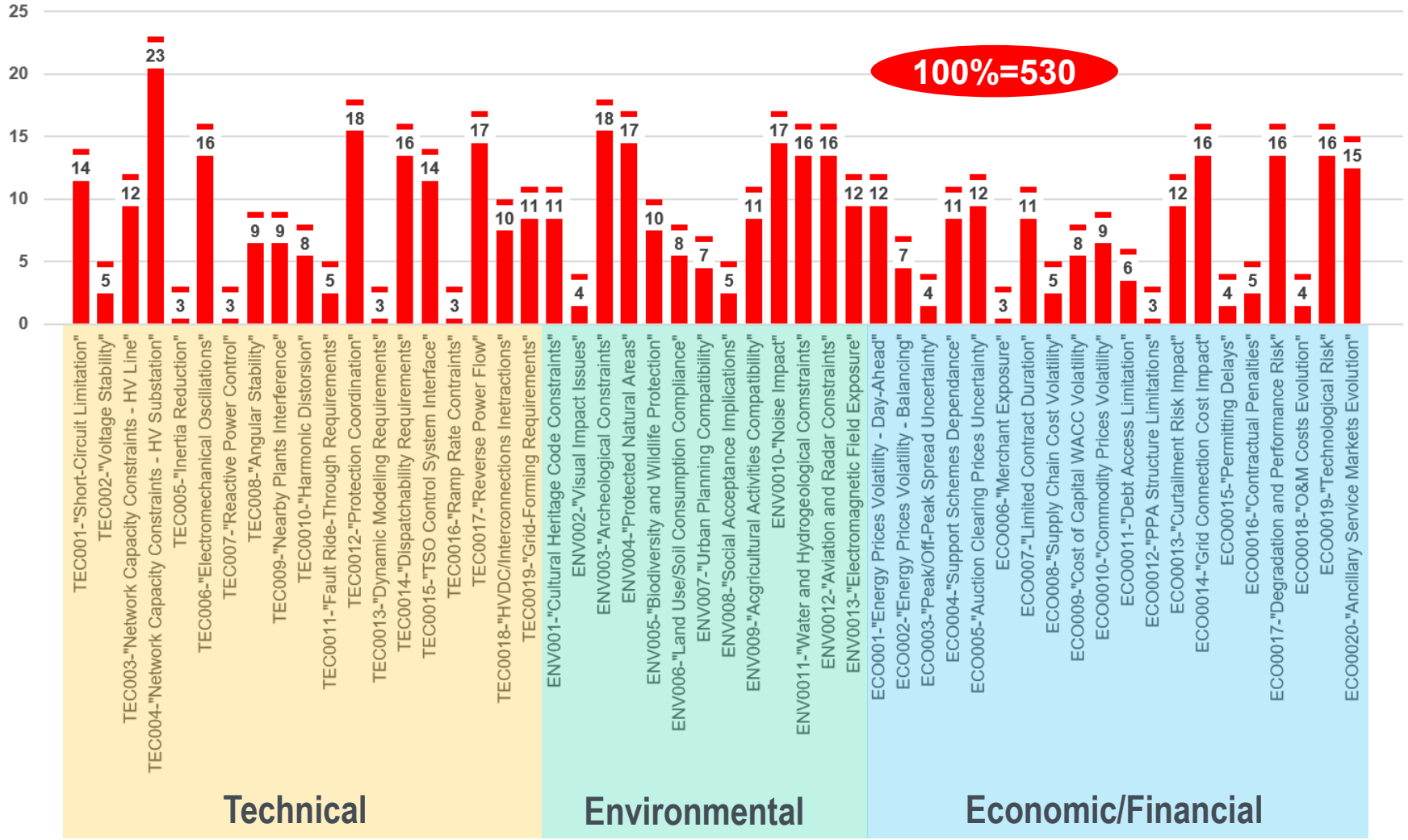


WRONG!



RIGHT!

What can possibly go wrong in a connection request?



- **52 limiting factors** in assessing a connection request
- **Over 500 instances** analysed
- **16 limiting factors** make 50% of all cases analysed

What can possibly go wrong in a connection request?
A real case

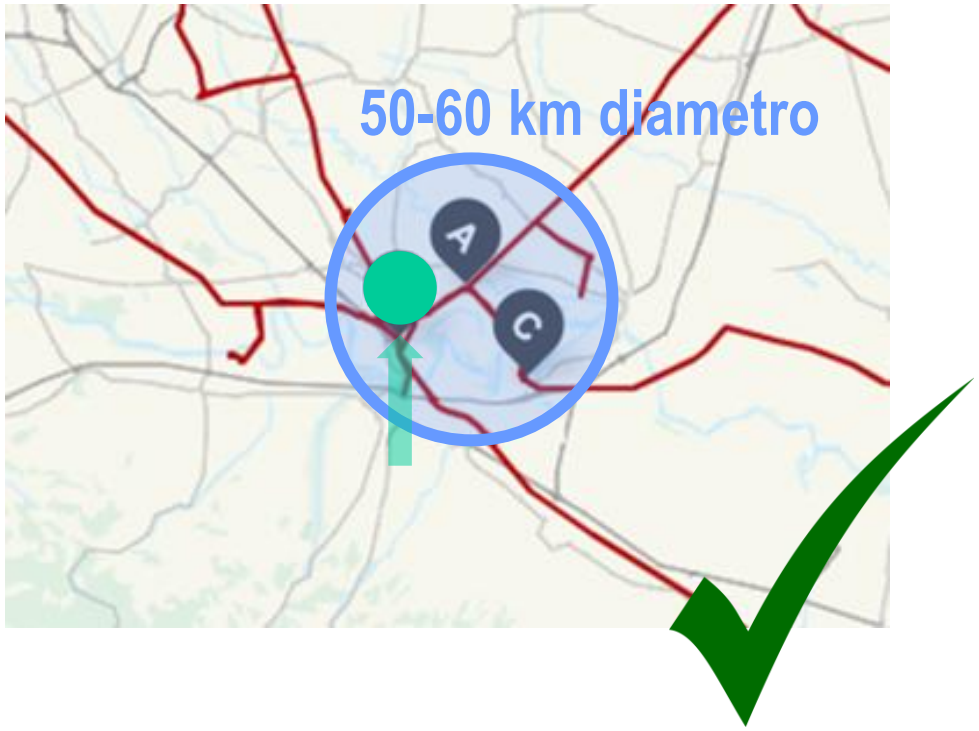
Assessment of "Network Capacity Constraints - HV Substation“:

- Power lines congestion, connection requests, number of circuits, proximity to power stations, interference with large loads, degree of network meshing, grid reinforcements, energy not supplied

What can possibly go wrong in a connection request?

A real case

WRONG!



RIGHT!

Thank you for your attention!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