Tomi Engel
28.01.2012 - Brussels

ECOS

European Environmental
Citizens'
Organisation for
Standardisation

Smart Electric Vehicle Charging

… and the Road ahead

ECOS

Who we are…

- Umbrella organisation: 28 Environmental NGOs from 16 countries
  - European Environmental Bureau, WWF Europe and Friends of the Earth Europe and many others …
- ECOS is the European Environmental Citizens' Organisation for Standardisation

ECOS

What we want…

- Rapid reduction of CO2 Emissions on a global scale.
- 100% Renewable Energy as fast a possible
- Energy efficiency in transport requires large share of electric mobility

Mother Nature is dezentralized

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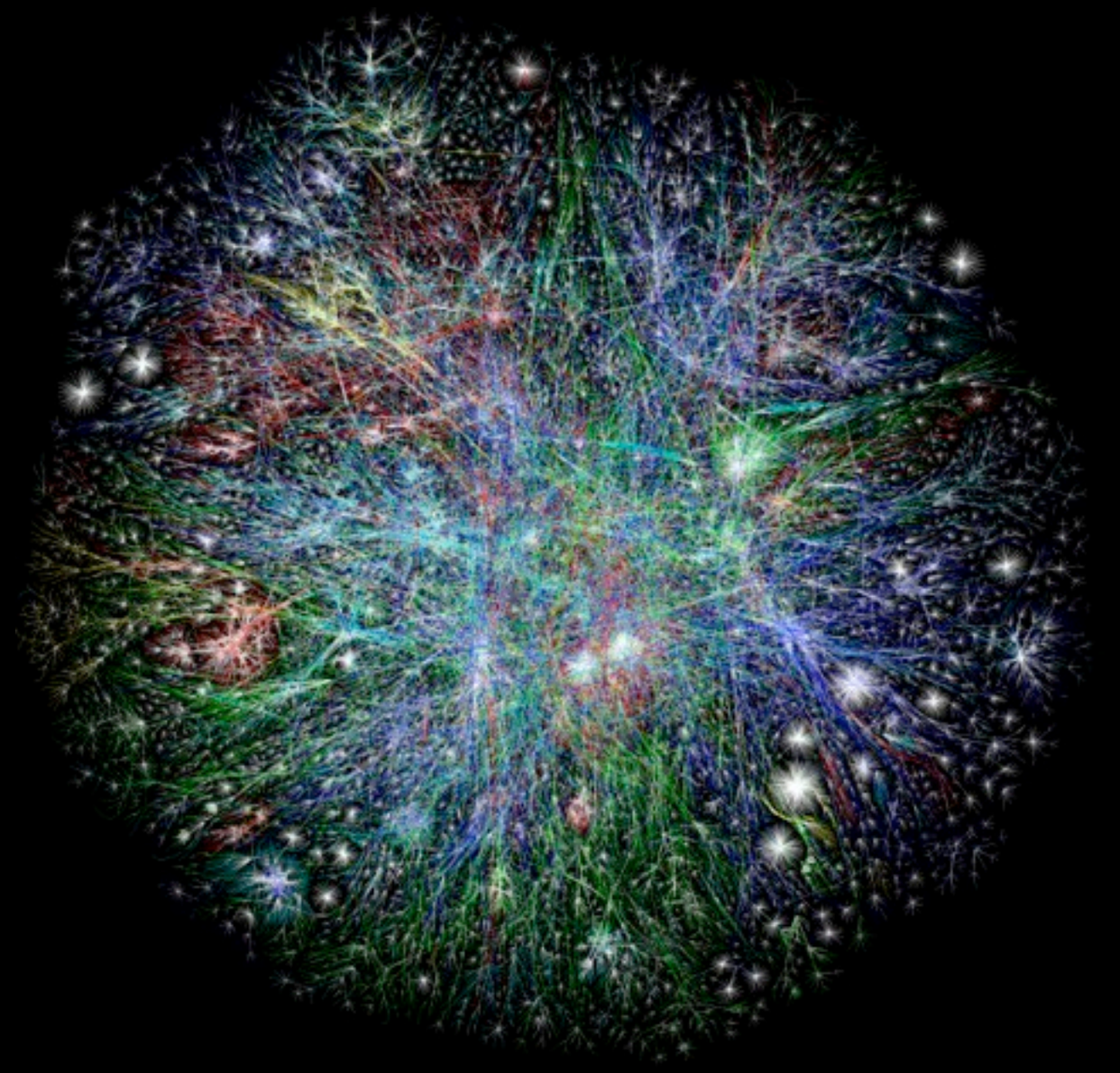


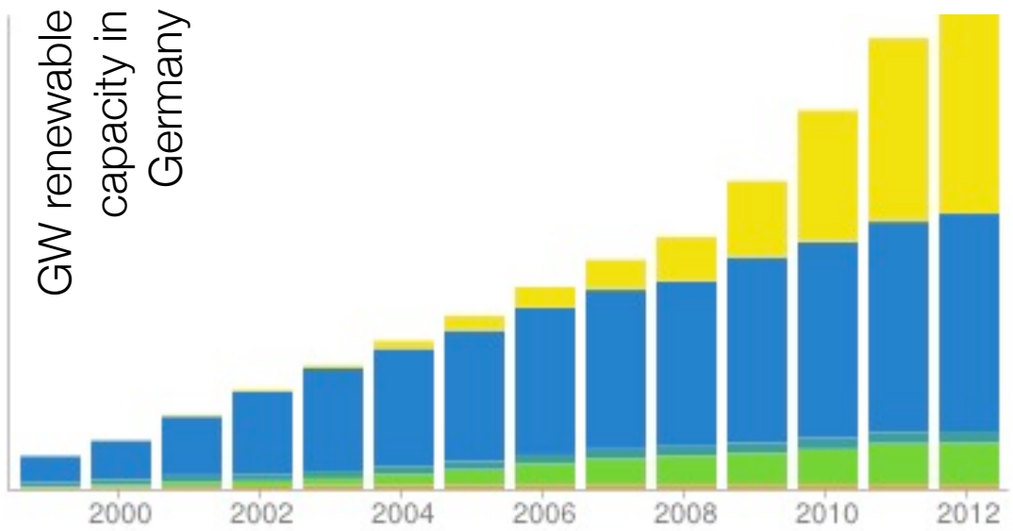
For the sake of agility and stability, there is
no single centralized control unit.

Decentralized Energy Sources

+10 GW/y

- Extremely fast uptake
- Central planning impossible

Decentralized Energy Sources



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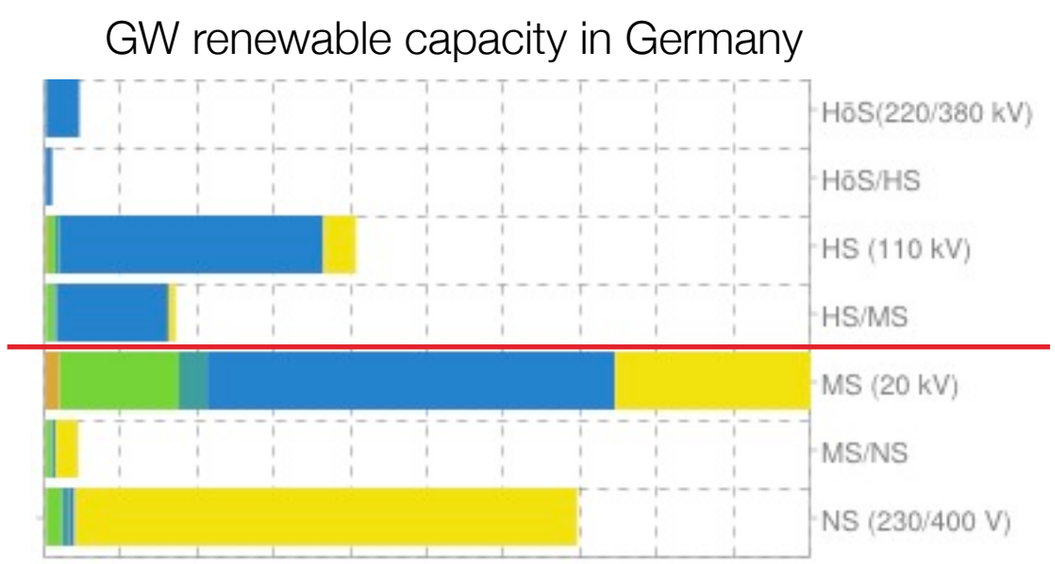


70% up to **20 kV**

- Hugh % at medium and low voltage grid levels
  - 95% PV, 85% Biomass …

Learning from Pousada do Parque

Extreme circumstances should not disrupt the entire (electric) system.

Learning from Fukushima

Extreme circumstances should not disrupt the entire (electric) system.

Learning from Fukushima

ECOS

Position

We need high tech solutions that work even under low tech circumstances.

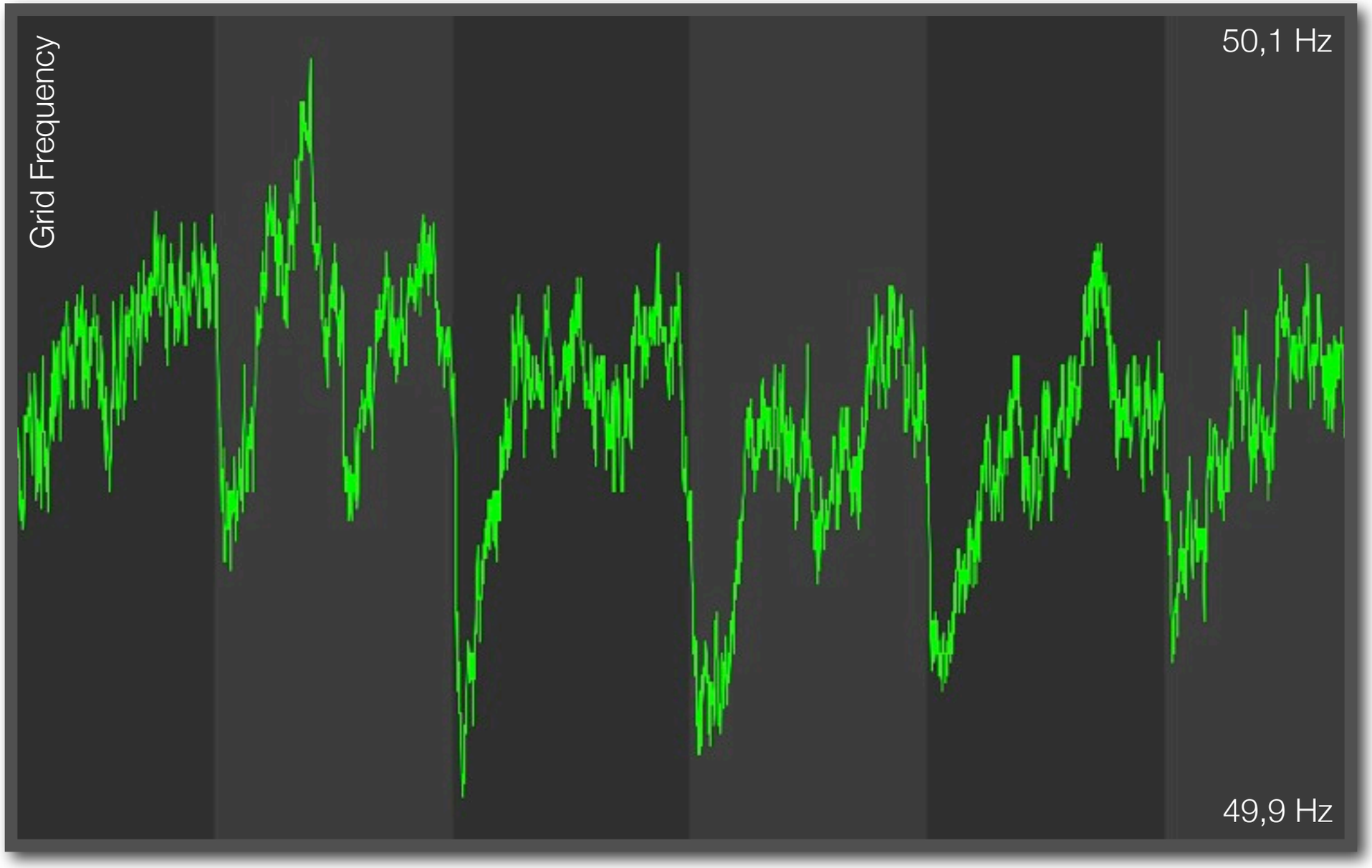
We should enable EVs to cooperate in the decentralized world of renewables.

Mother Nature does not negotiate

Mother Nature does not negotiate

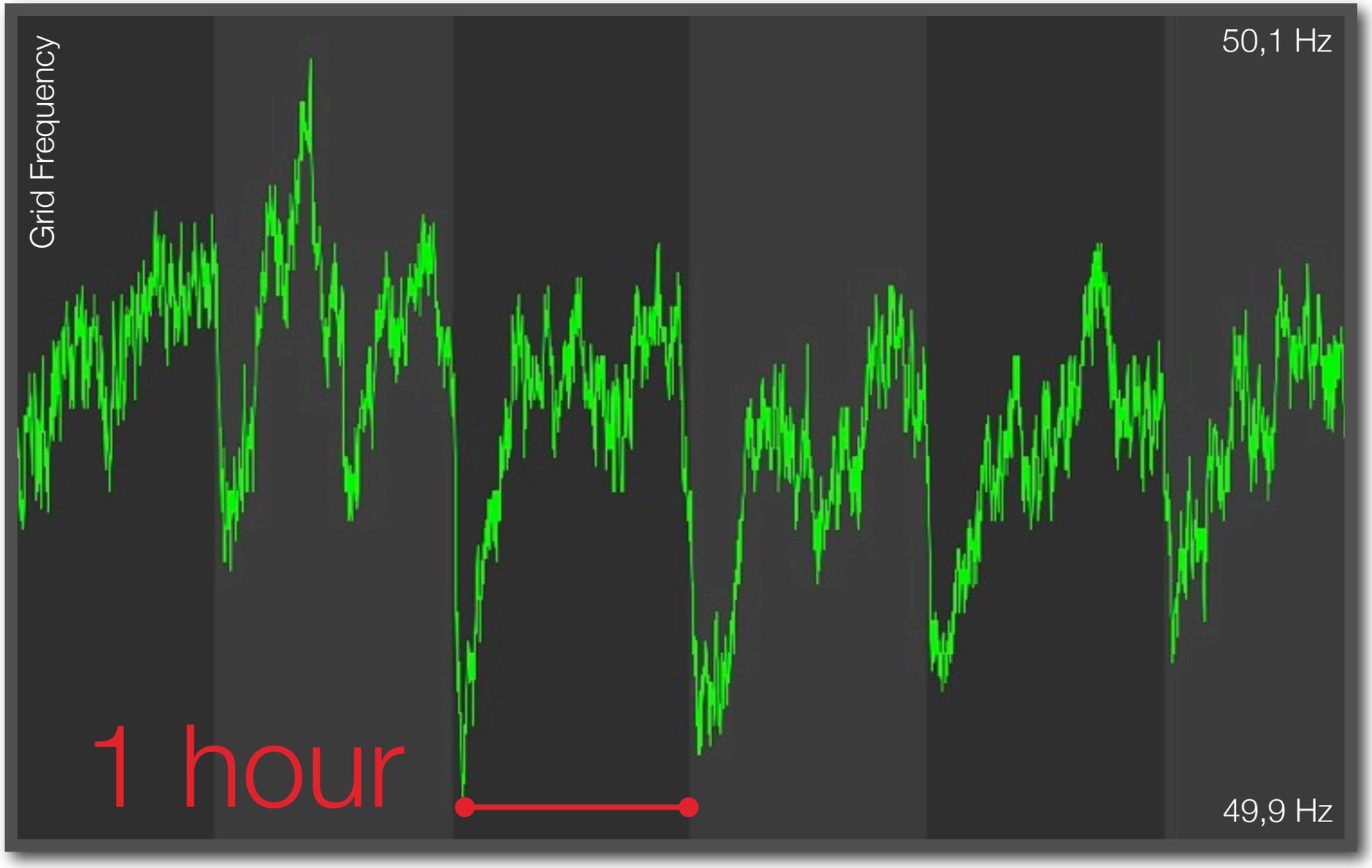
You can not bribe the laws of physics!

What Physics tell us about Markets



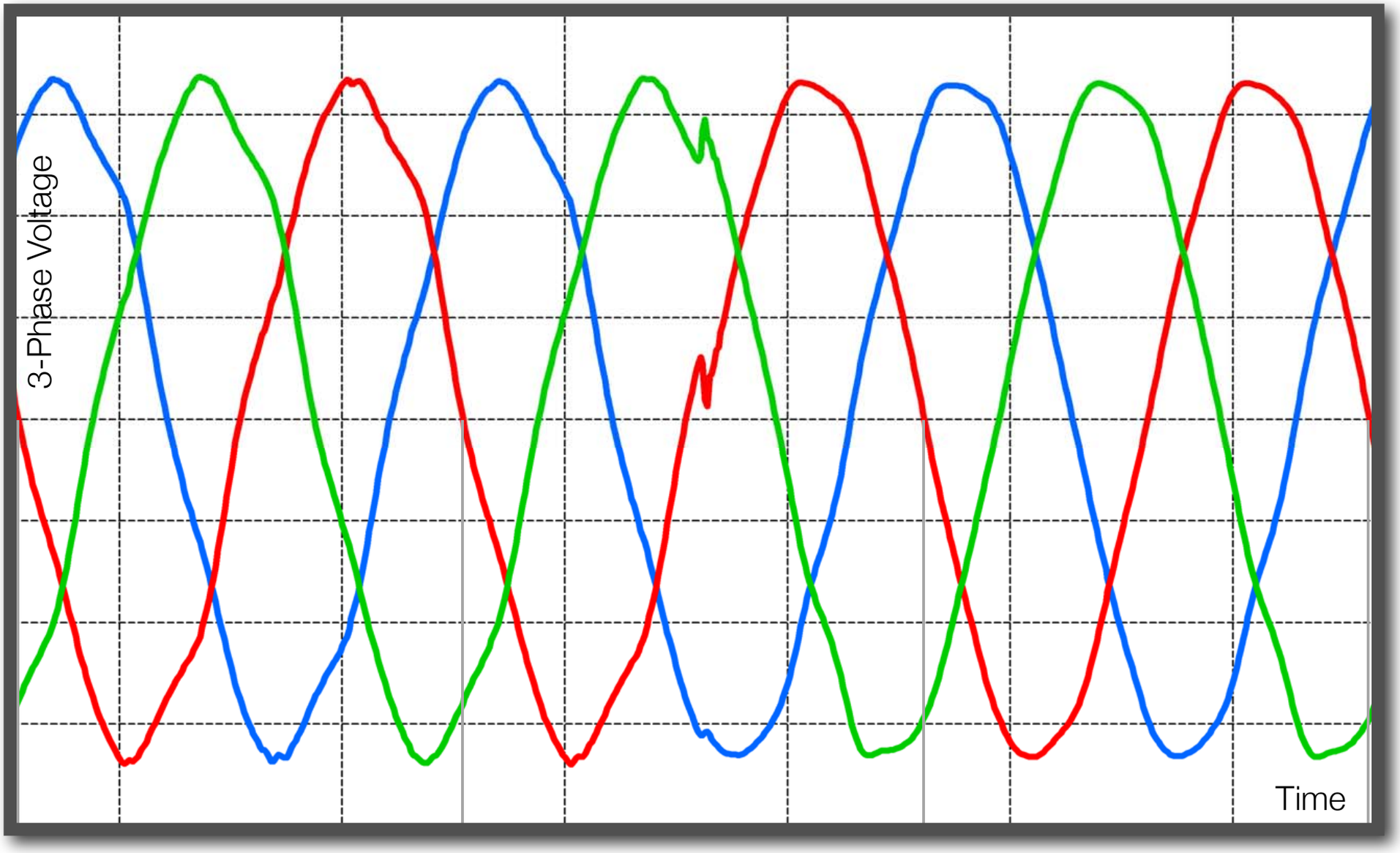
Markets do what they are designed to do

What Physics tell us about Markets

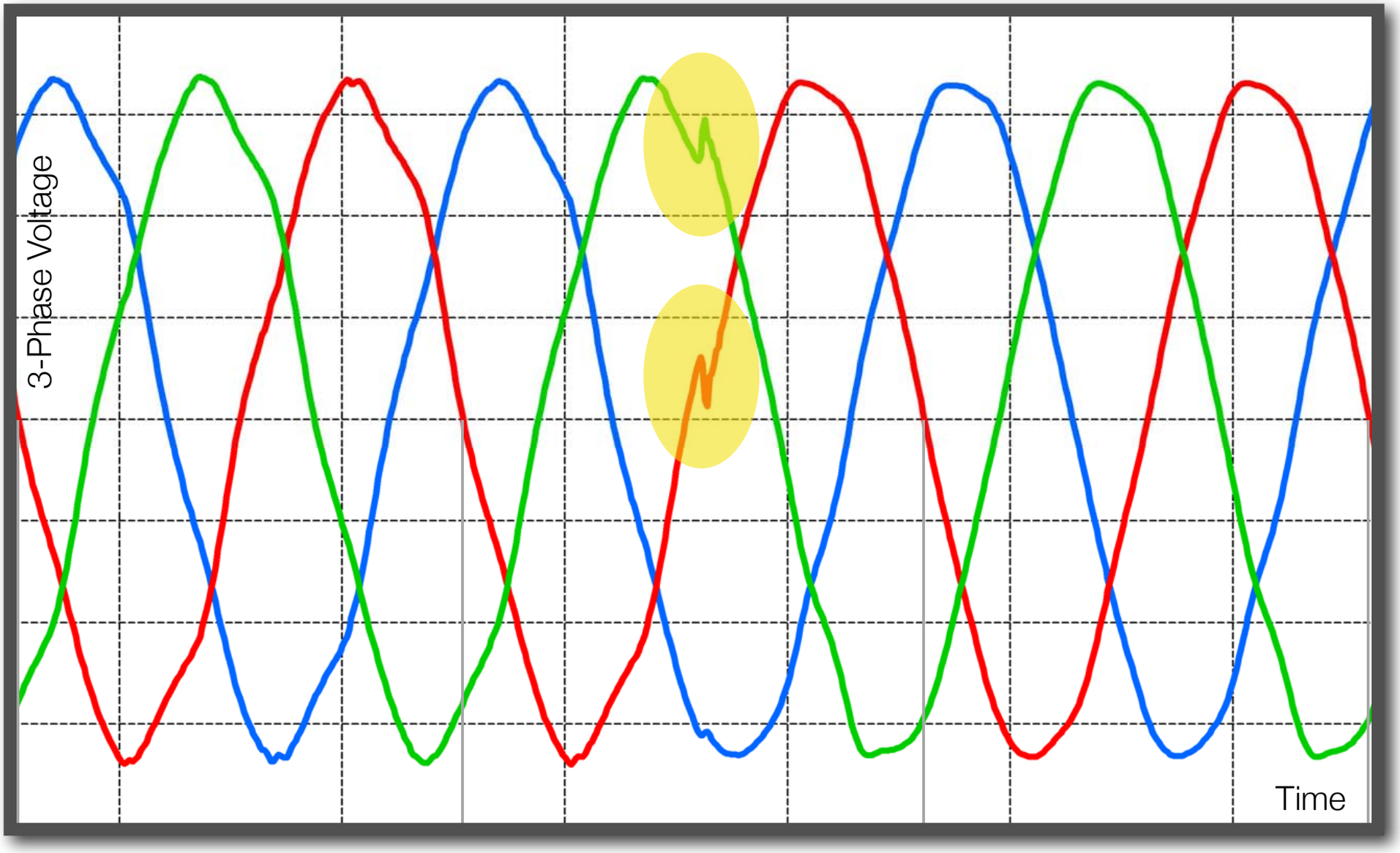


Markets do what they are designed to do
… which might not be what we want them to do.

A Matter of the Time Scale



A Matter of the Time Scale



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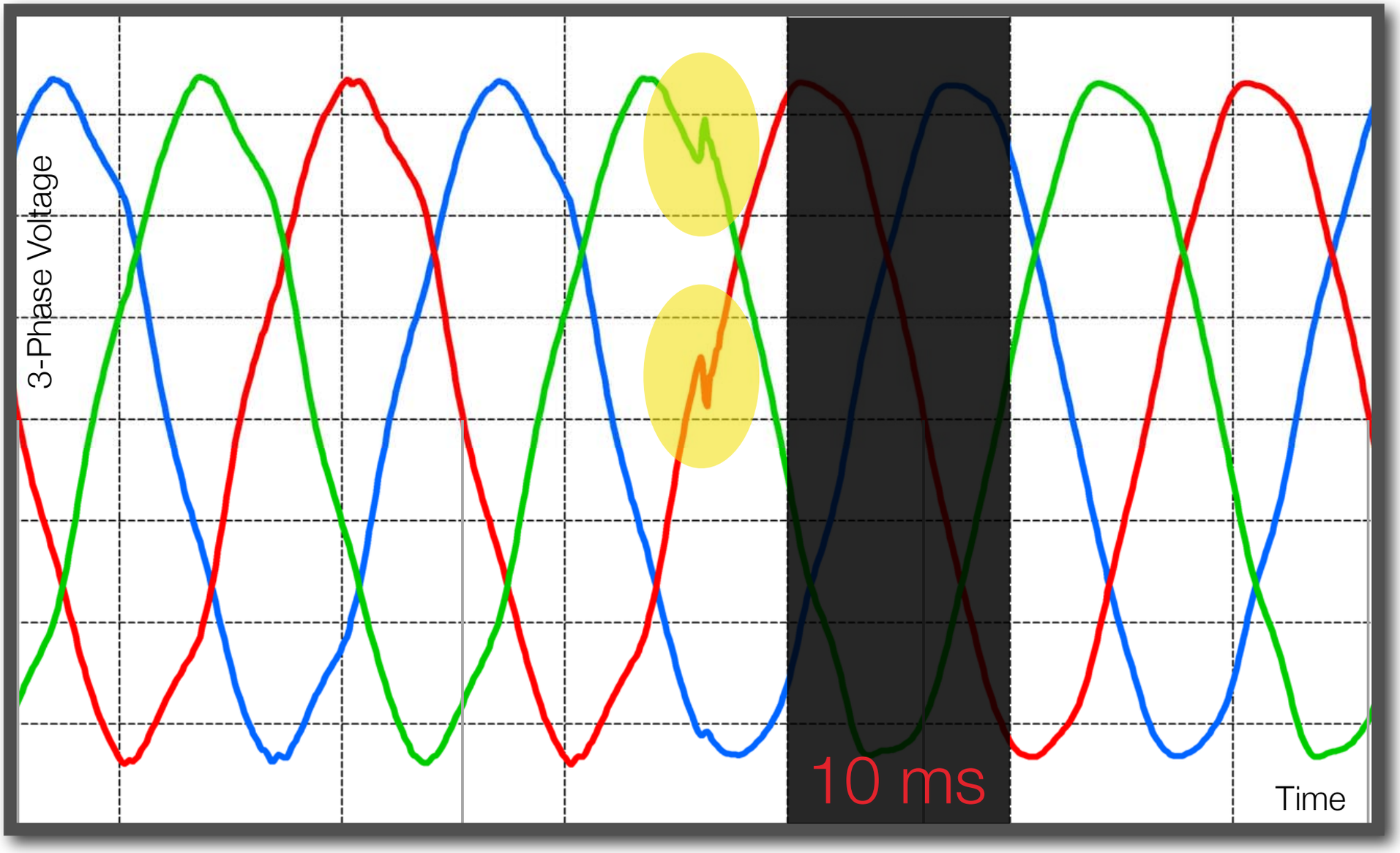
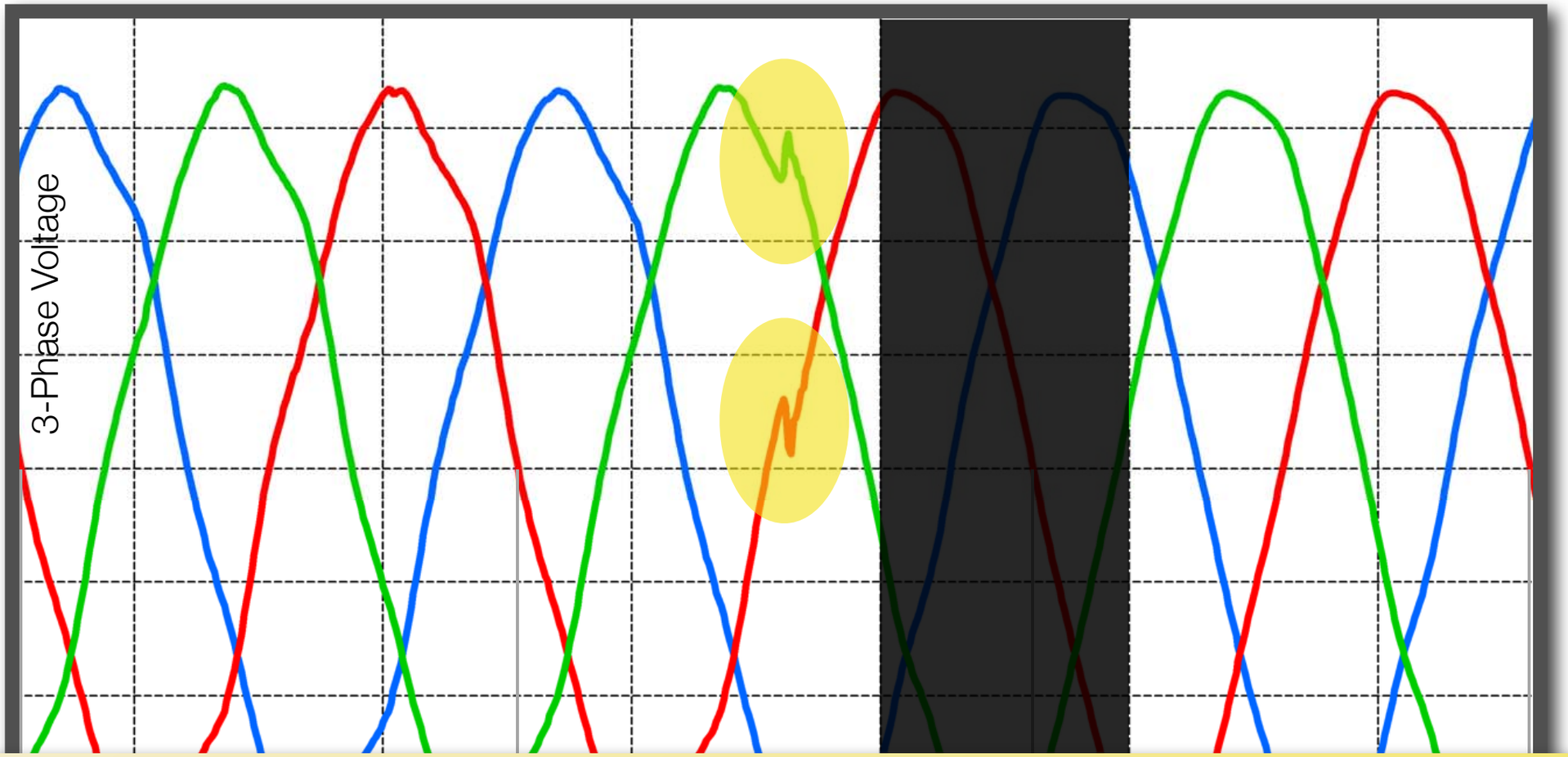


Some problems need to be solved by technology.

A Matter of the Time Scale



ECOS

Position

We need to expand our focus and include the "laws of physics"

We need a common understanding of grid codes in a 100% renewable grid.

Mother Nature loves competition

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Millions of species compete in the cooperative effort to sustain and advance one shared ecosystem.

Competition Example 1: # Charging Plugs

- Standardised and "complete"
- Supported by many companies

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- Standardised and "complete"
- Supported by many companies

- Custom design
- More elegant
- Easier to use? Less resources?

Competition Example 1: # Charging Plugs

ECOS

Position

Standards should not prevent better solutions from entering the market.

A common charging plug is not required for renewable electromobility (now).

Competition Example 1: Charging Plugs

- Powerful
- Managed
- … but not available

- "Good enough"
- Available everywhere
- … but not "managed"

Competition Example 2: **Metering**

- Stationary Smart Metering
- Well defined and understood
- Standardised

- Mobile Smart Metering
- Cheaper and more flexible
- New concept for EVs

Competition Example 2: # Metering

ECOS

Position

Mobile Metering should be seriously considered for all electric vehicles.

Energy and CO2-balances for individual cars can play a key role in future policies.

Summary of ECOS Positions

- We need to expand our focus and "embrace the laws of physics".
- We should not enforce products in the market at this early stage.
- We should give mobile Onboard Smart Metering a serious look.
- Standardisation is important … but we are far from being done.

There is more work on the road ahead!

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