Eress Forum Workshop

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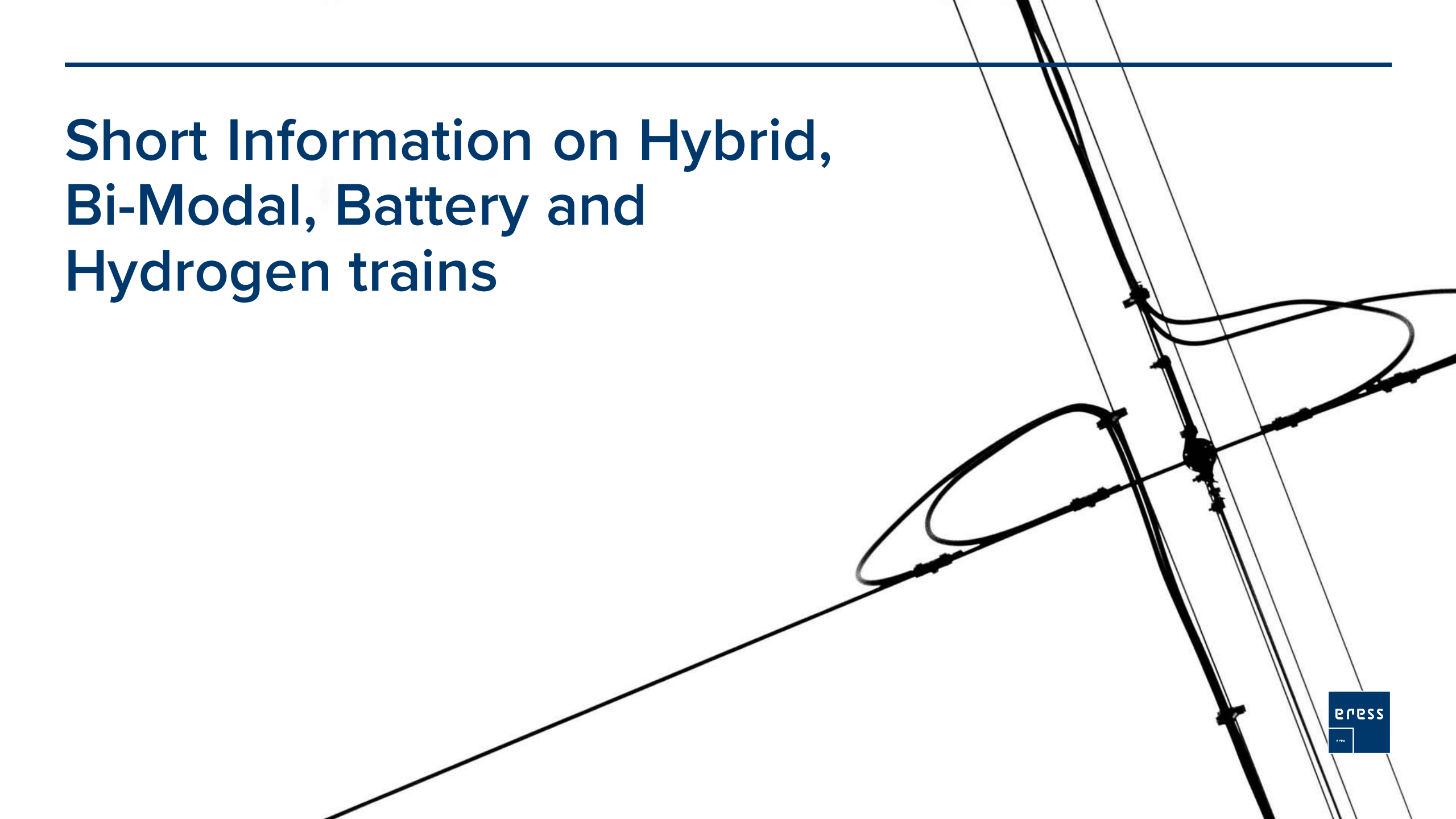
Luxembourg

Welcome

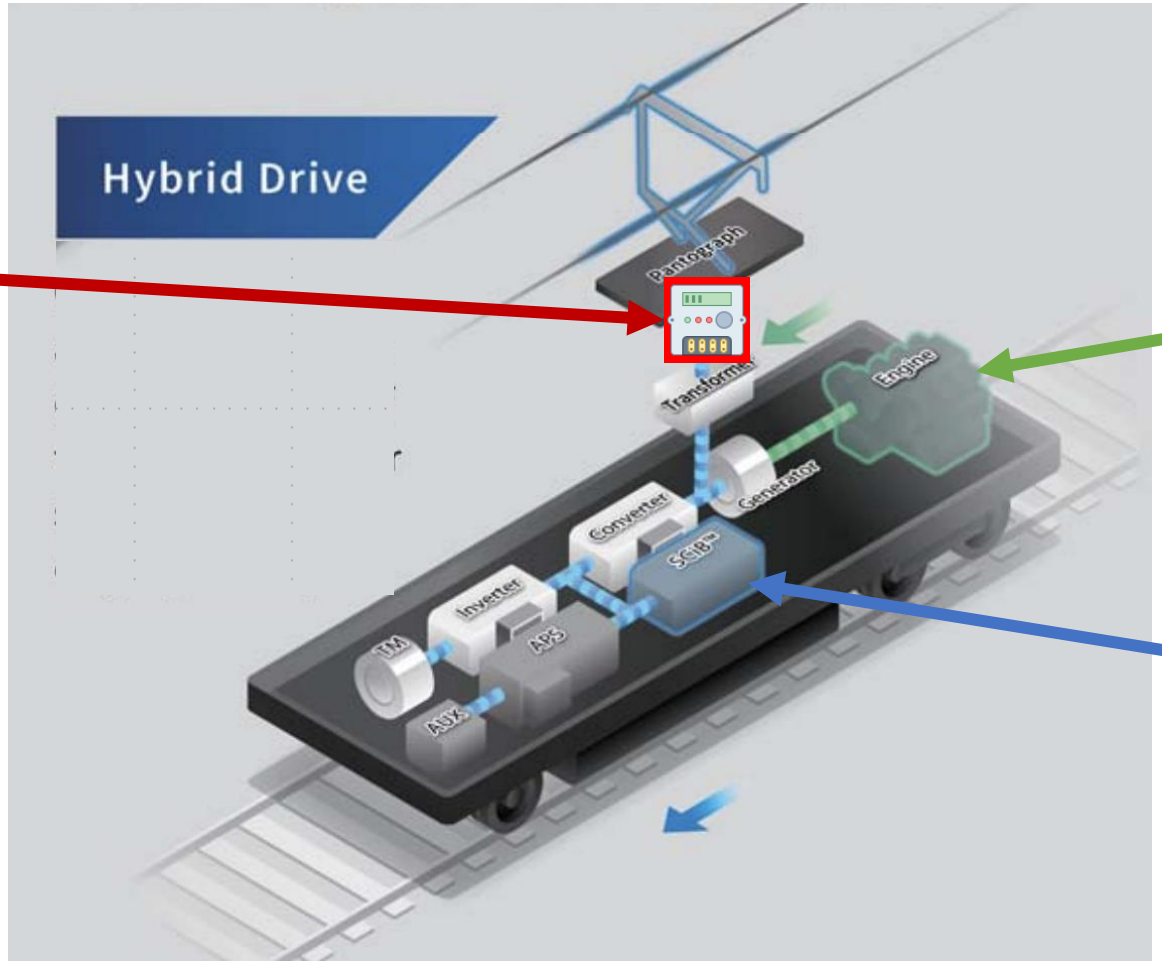
Short Information on Hybrid, Bi-Modal, Battery and Hydrogen trains



There are different types of Hybrid trains

For Eress Forum, we focus on Hybrid Systems with Pantograph/Overhead Line

Energy Meter

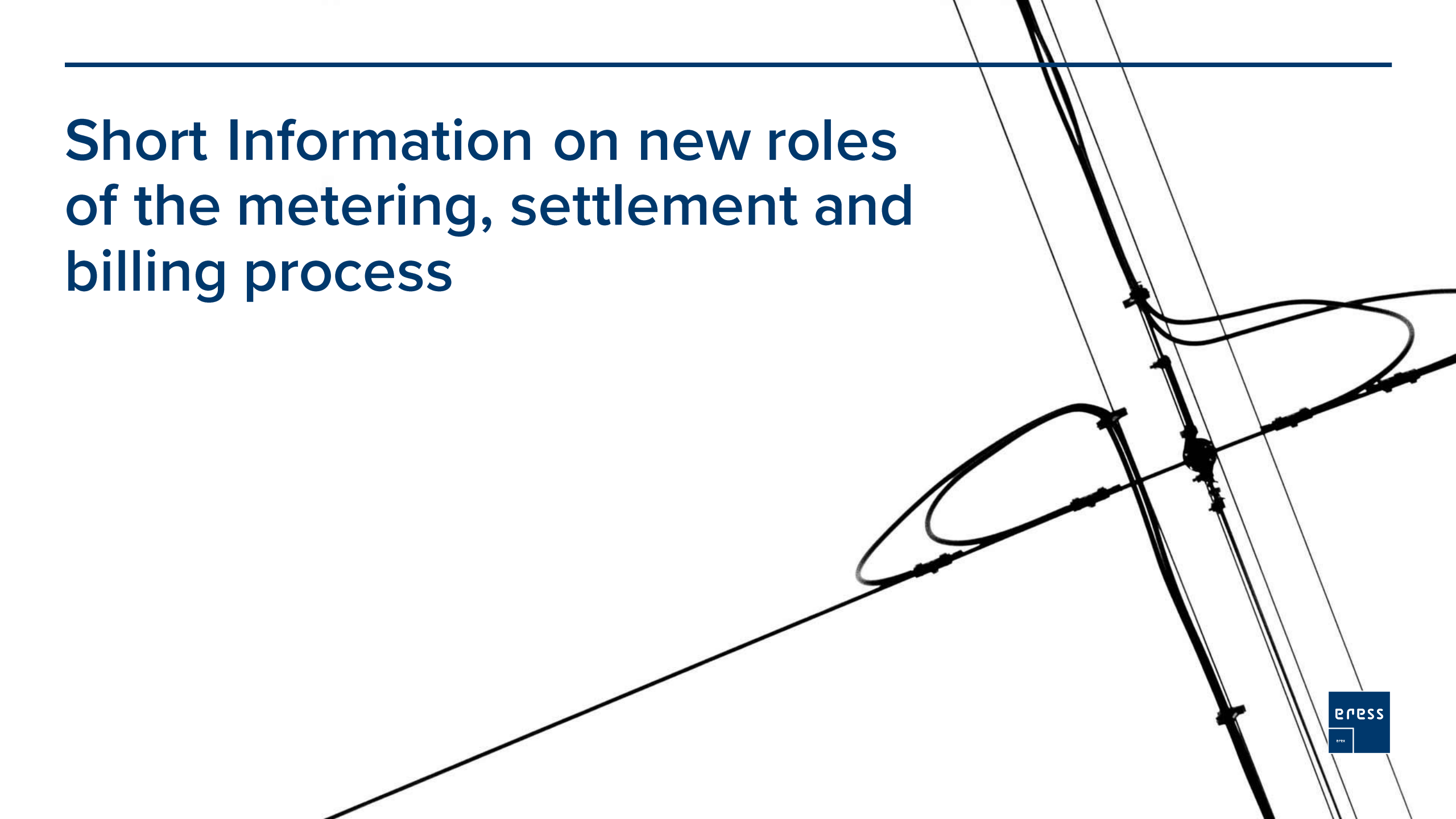


Hybrid Engines options:
- Diesel
- Hydrogen
- No Engine

Hybrid Battery options:
- With Battery
- No Battery

Picture: Toshiba Hybrid_locomotives_and_propulsion_systems.pdf

Short Information on new roles of the metering, settlement and billing process



	**1. Use certified equipment** - Each component shall be able to be certified and callibrated - Regulation is on European level	- Which EN applies? - Who delivers certificates? - How do we know that the equipment proposed by Train manufacturer is proper? More...
	**2. Start with a plan** - Supplier makes a plan - Notified Body verifies this plan	- What should be in the different plans? - What is a Notified Body? - Why do we need to involve a Notified Body? - Where can I find them? More...
	**3. Notified body checks first installation** - Notified Body checks the first installation - You may use existing onboard equipment	- What is delived by a Notified Body in this check? - Why is that needed? - Can we reuse existing sensors? More...
	**4. Install it in a certified workshop** - Workshops need proper certificates - Workshop issues installation reports	- Which certification is adequate for a workshop? - Is any certified railway workshop proper for energy meter and data handling installation? - How should an installation report look like? More...
	**5. Choose a Data Collecting System** - The provider collescts all data from the traction unit - Data is sent to a settlement system	- What is a Data Collecting System? - Why should I chose one? - Which one should I choose? - Is it provided by my home Infrastructure Manager? More...
	**6. Settlement** - Settlement prepares an energy bill for a geographical area - You will get an invoice for your energy consumption	- Who is your Settlement system provider? - What do you have to do? How will data from energy meters be handled? - Where can you find extra information? - What do you have to do? More...
	**7. Maintain your Energy Measurement System** - The equipment onboard must be regularly monitored - Some equipment needs to be recallibrated	- Who should I call when I do not get data from an energy meter? - Who can fix broken energy meters or sensors? - Should I report it? - When do we have to recalibrate equipment? More...

Slido-questions (to be replied individually)

Who are you?

- Country
- Role (IM, RU, leasing company, supplier, other)

How many hybrid trains do you have?

- Do you already have electrical trains with also diesel engine? (Yes / No / Don’t Know)
  - Are you expecting to have in next 5 years? (Yes / No / Don’t Know)
- Do you already have battery trains? (Yes / No / Don’t Know)
  - Are you expecting to have in next 5 years? (Yes / No / Don’t Know)
- Do you already have hydrogen trains? (Yes / No / Don’t Know)
  - Are you expecting to have in next 5 years? (Yes / No / Don’t Know)

Enter your answers on Slido.com, Event code: Eressdays

Please be back in Plenum at 14:30

Discussion (in small groups)

Question on the 7 steps approach in general:

1. Are the 7 steps a good approach for having qualitative energy measurement and settlement?
    a) What issues do you see?
    b) Are extra checks needed?

Apply the 7 steps on different types of hybrid trains:

2. Can we use a standard Energy Metering System on Hybrid trains? (Yes / No)
3. What about data collection and exchange between different countries? (No difference / Difference – please explain)
4. What needs to be changed regarding energy settlement? Please explain for each type:
    a) Electric traction unit parallel diesel engine (booster and first/last mile)
    b) Electric traction unit with on-board energy storage (battery trains)
    c) Electric traction unit with hydrogen fuel cell and batteries (hydrogen trains)