Energy consumption in terms of cost per passenger and 100 km for different traction modes

Cost for energy:
- 0.95 €/l diesel
- 0.10 €/kWh electricity
- 0.70 €/kg CNG (without fuelling station)
- 4.00 €/kg green H2 (without fuelling station)

Energy consumption:
- Fuel cell
- Fuel cell hybrid
- Hybrid serial
- Hybrid parallel
- Diesel
- Gas bus
- Battery
- Duo bus (diesel)
- DUO bus (battery)
- Trolley

Use of fossil H2 with 1.4 €/kg and compressor at fuel station

Cost per passenger for traction energy

This project is implemented through the CENTRAL EUROPE Programme co-financed by the ERDF.
Trolley-bus is often in competition with diesel-bus, even if it is closer in effect to tramways.

- Engine, electronics and infrastructure are derived from tramways.
- Lifetime of traction components are similar, accordingly.

**Trolley-bus = "rubber-tram"**

**System comparison**

<table>
<thead>
<tr>
<th></th>
<th>Tram</th>
<th>Trolley</th>
</tr>
</thead>
<tbody>
<tr>
<td>planning</td>
<td>5-10 y</td>
<td>1-2 y</td>
</tr>
<tr>
<td>infra constr.</td>
<td>5-10 y</td>
<td>1-2 y</td>
</tr>
<tr>
<td>total</td>
<td>10-20 y</td>
<td>2-4 y</td>
</tr>
</tbody>
</table>

**Investment**

- Tram: infra constr. 1.000, rolling stock 300, total 1.300
- Trolley: infra constr. 100, rolling stock 100, total 200

**Times**

- Trolley: 5 times Tram (time to market, investment volume)
- Times: 6

Trolley-bus is often the "better" investment to a tram.
Lifetime, investment and annual amortisation of PT systems

Diesel and gas show higher wear and tear due to vibrations and more parts with mechanical move
Relation of investment and lifetime is much better for trolley than for tram

1 for trolley, tram and metro intermediate modernisation of interio and electronics is calculated