**BSR’s Future of Fuels**

FUEL TECHNOLOGY Pilot Case study template

Introduction

BSR’s [Future of Fuels](https://www.bsr.org/en/collaboration/groups/future-of-fuels) focuses the efforts of leaders to drive immediate progress on sustainable fuels for road freight. We do this by developing solutions and engaging the value chain to manage a sustainable transition to low-carbon road freight.

The case study template below will help fleets of all sizes to test new sustainable road freight technologies with their suppliers using a standardized format and learn from others to accelerate bringing technologies to scale. Through the case studies, companies will:

* Reduce testing and learning times and costs by sharing open-source
* Produce credible and useful information in a standardized format
* Have access to data that meets fleet manager needs without sharing sensitive details

BSR designed the case study template in order to ensure that fleet owners and suppliers can determine context and applicability around the following questions:



BSR envisions a case study library that covers both existing technologies that are being widely tested and nascent technologies that are still in the early stages of development and adoption. BSR will curate and organize case studies following the results of tests performed by Future of Fuels members and [Sustainable Fuel Buyers’ Principles](https://www.bsr.org/en/collaboration/groups/sustainable-fuel-buyers-principles) signatories. BSR will also host them on a public platform, support GHG calculations, and identify gaps and emerging areas for additional testing with Future of Fuels members.

**Instructions:**

* Enter details in the highlighted text box. Provide details with the highest level of accuracy possible.
* Provide any additional comments with as much detail as possible in order to ensure holistic information
* Submit to BSR to review for completeness, finalization with greenhouse gas calculations using [*BSR’s Fuel Sustainability Tool*](https://www.bsr.org/collaboration/groups/future-of-fuels), and publication on [www.bsr.org](http://www.bsr.org)

Baseline fleet and technology

*Please describe the* ***characteristics of the existing technology*** *in your fleet (i.e. prior to the test). This provides information on the fleet characteristics, duty cycle details, and region of operation for the technology being tested.*

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| --- | --- | --- | --- | --- |
| **Company Name**: | | *Name of company performing test* | **Vehicle type**: | *Baseline class of truck in existing fleet that would be replaced* |
| **Fuel type**: | *Baseline type of energy used to power drivetrain; enter “Electricity” for EV* | | **Feedstock**: | *Description of source, including feedstock* |
| **Refueling:** | | OnsiteOver the roadOther  *“Other” description* |  |  |
| **VMT**: | | *Average total miles travelled annually per truck of this type* | **Hours of operation**: | *Average hours of operation per year per truck of this type* |
| **Average load**: | *Average weight carried by a truck of this type* | | **Max load**: | *Maximum weight carried by a truck of this type* |
| **Length of haul**: | *Average length of the load carried (in miles)* | | **Return to base**: | YesNo  *Does this vehicle return to base each day?* |
| **Country**: | *Country of operation* | | **City or region**: | *City, cities, or region of operation* |
| **Lifespan**: | *How many years does a truck like this operate before retiring from your fleet?* | |  |  |
| **Description**: | *Additional description of fleet or duty cycle (optional)* | | | |

Technology and test purpose

*Please describe the* ***type of technology tested*** *and* ***primary reasons*** *behind the test.*

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| --- | --- |
| **Technology tested**: | *Name of the engine technology tested. This should help to categorize the engine and technology type without using vendor names and brands.* |
| **Test purpose**: | *What were the top 2-3 primary factors in your decision to run the test? (e.g. cost savings, customer requirements, regulation, diversify supply, innovation, sustainability, etc.)* |

Test parameters

*Please describe the* ***actual parameters used to test*** *the new sustainable technology including number of vehicles tested, testing timeline, additional training and infrastructure requirements etc.*

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| --- | --- | --- | --- |
| **Test Standard**: | *Standard followed, if any (e.g. ASTM, SAE etc.)* | **Sample size**: | *Number of trucks that were part of the pilot* |
| **Test dates**: | *Start date to end date of test* | **Total miles tested**: | *VMT of trucks during test phase* |
| **Total hours tested** | *Total hours of operation during test phase* | **Average load tested**: | *Average weight carried by the truck during test* |
| **Max load tested**: | *Max weight carried by the truck during test* | **Time to fuel**: | *Average time of refueling/recharging by the truck during test (in minutes)* |
| **Testing barriers**: | *Please describe any barriers / challenges to the test itself (optional)* | | |

Supporting services

*Please describe the* ***additional supporting services needed*** *for the sustainable technology**tested, including details on fuel type, infrastructure requirements, personnel training.*

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| --- | --- | --- | --- |
| **Fuel type**: | *ASTM Name and type. For electric, please specify type (e.g. PHEV, EV, HEV)* | **Feedstock**: | *Description of source, including feedstock* |
| **Levef of readily available** **infrastructure**: | HighMedLow  *H = widely available / M = requires some planning or fuel delivery / L = fuel is specialty procured, no local infrastructure* | **New/special infrastructure requirements**: | *Description of additional infrastructure or asset investment requirement, if any. This may include any private fueling or new capital investments.* |
| **Special training requirements**: | *Short description of any additional training (e.g. drivers, maintenance, fleet managers)* | | | |

Operational performance

*Please describe the key metrics used to* ***measure******operational performance*** *of the alternative fuel or technology (benchmarked against the current technology used in the fleet).*

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| --- | --- | --- | --- | --- |
| **GHG emissions reduction %**: | | *BSR to calculate using Fuel Sustainability Tool* | **Air quality emissions %**: | *Enter vendor provided expectations for NOx reduction* |
| **Fuel economy (MPDGE)**: | | *Enter average MPDGE (Range for electric)* | **Driver satisfaction**: | HighMedLow |
| **Special training requirements**: | *Description of additional training (e.g. drivers, maintenance, fleet managers)* | | **Special maintenance requirements**: | *Describe any O&M, maintenance issues, concerns, or benefits* |

**Additional Benefits for Fleet**

*Describe any additional benefits for your fleet not covered elsewhere*

**Additional Challenges for Fleet**

*Describe any additional challenges faced by your fleet not covered elsewhere*

Financial performance

*Please describe your company’s expectations for* ***financial and economic performance*** *of the technology (benchmarked against the incumbent fuel/technology). Please ignore any test-specific costs. If possible,make an estimate of the savings / costs expected if this technology were to be incorporated fully into your fleet.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Fuel premium/ savings %**: | *Enter a percentage and / or describe relative fuel savings(-) or costs(+) expected for your fleet* | **Maintenance premium/ savings %**: | *Enter a percentage and / or describe relative maintenance savings(-) or costs(+) expected for your fleet* | |
| **Capital premium/ savings %**: | *Enter a percentage and / or describe relative capital savings(-) or costs(+) expected for your fleet* | **Estimated residual value $**: | | *Enter projected residual value of the new technology at end of asset life* | |
| **Did you use subsidies?**: | YesNo |  |  | |

Conclusions

**Will you include this technology in your fleet?** YesNo

*Why or why not?*

*Additional comments*

**Would you recommend this technology for other fleets or applications?** YesNo

*Why or why not?*

*Additional comments*

**Summary of findings**

*Please provide a narrative overview of this test highlighting key strengths and challenges with the technology and summarizing your overall conclusions.*

***Thank you for your time and for sharing results to accelerate testing, refinement, adoption of new sustainable road freight technologies!***