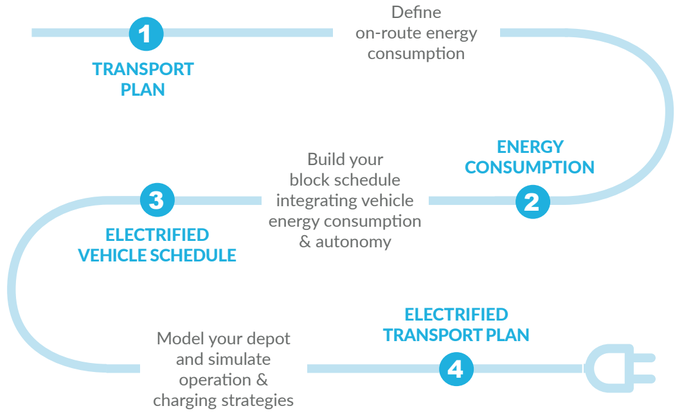
SOLUTIONS TO MODEL YOUR OPERATION PLAN AND YOUR DEPOT FOR TAILORED DECISIONS

TESS simulation to help shift your operation plan from diesel to electric



COST EFFECTIVE

UP TO -60%

of initial CAPEX investment

MINIMIZING DISRUPTION

Electrified operation plan & charging strategy fully tested

IMPROVING SUSTAINABILITY

UP TO -70%

in power demand

YOUR PREFERRED ENERGY TRANSITION PARTNER

SYSTRA's 65 years of mobility experience provides a system-wide vision for mobility performance

Our interdisciplinary expertise includes: transportation planning, electrical engineering, operation and maintenance engineering, battery technologies and charging device technologies.

SYSTRA's bus fleet electrification solutions help control costs while delivering optimized service to your customer.

SYSTRA

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CONFIDENCE MOVES THE WORLD

BUS FLEET ELECTRIFICATION

SYSTRA

Shift successfully your operations while reducing your investment cost

PIONEERS OF SUSTAINABLE MOBILITY BUSES DRIVING TOWARDS ZERO EMISSIONS

Reduce your GHG emissions and optimize both your delivery and your investments through the electrification of your bus fleet.

Transport represents almost a quarter of greenhouse gas (GHG) emissions and is the main cause of air pollution in urban areas. As key players of low-carbon mobility, transport operators are being urged to improve their infrastructures and fleets, and to build electro-mobility solutions to reduce their environmental footprint. Bus electrification also has a positive impact on the population by reducing noise.

This is why, SYSTRA places operations at the forefront of your electric transition and supports you throughout the creation of your electromobility roadmap.

Our expertise helps you:

- tackle the many challenges arising from the conversion of your existing diesel fleets to zero-emission vehicles;
- accompany and monitor every step of your fleet electrification projects with specifically developed tools;
- size the charging infrastructure according your operational needs to ensure a successful delivery to your customer while minimizing your investment costs.

PAVING THE WAY FOR A CLEANER ENVIRONMENT WITH OUR APPROACH

1 Feasibility Study
- → Grid requirements
- → TESS simulations
- → CAPEX/OPEX

2 Pre-project Studies
- → TESS simulations
- → Equipment benchmarking
- → Charging infrastructure

3 Preliminary Design
- → Electrical room design
- → Charging interfaces
- → Electrical infrastructure

4 Procurement
- → Technical specifications for charging equipment
- → Design reviews
- → First article inspection (FAI)

5 Detailed Design
- → BIM
- → Installation plans
- → CAPEX/OPEX

6 Construction
- → Site supervision
- → Quality control
- → Deviation requests

7 Testing & Commissioning
- → Testing procedures & schedule
- → Integration & functional testing
- → Smart charging integration

8 Operation
- → Maintenance procedures
- → Charging schedule optimization
- → Big Data

SHIFTING TO AN ELECTRIFIED BUS FLEET TO REDUCE YOUR CARBON FOOTPRINT

ELECTRIFICATION OF ENTIRE BUS NETWORK
Quebec, Quebec, Canada

- Carry out upgrades to the Metrobus centre for the maintenance and recharging of 18-metre articulated buses (BHLS) and 24-metre BRT type bus facilities per step-by-step plan;
- Model routes that will be served by electric buses to determine type of recharging required;
- Identify standards and technological norms;
- Create energy management model;
- Conduct impact analysis on current operating upkeep and maintenance methods;
- Plan for development of new skills required by the electrification of the bus fleet.

ELECTRIFICATION & EXTENSION OF EXISTING DEPOT
Laval, Quebec, Canada

- Conduct electrification study for a fleet of 280 electric buses;
- Perform BIM modelling and integration of charging infrastructure;
- Conduct market study of fast chargers and charging interfaces available in North America;
- Simulate vehicle movements within depot based on service schedule provided by customer;
- Participate in procurement process: technical specifications, proposal assessments, design reviews, factory acceptance tests, etc.

ELECTRIFICATION & EXTENSION OF EXISTING DEPOT
Longueuil, Quebec, Canada

- Conduct electrification study for a fleet of 215 electric buses;
- Design and build an outdoor bus shelter to test charging equipment in Canadian winter climate conditions;
- Purchase chargers and charging interfaces from preferred manufacturers to test interoperability and capture real-world data;
- Assess infrastructure resiliency with 1 MVA and 2 MVA emergency generators.