



FACTSHEET

RCS-ADL: the “green wave”.

“ADAPTIVE CONTROL” (ADL) MAKES UNPLANNED STOPS AT SIGNALS A THING OF THE PAST. THIS SAVES ENERGY AND IMPROVES PUNCTUALITY.

The objective of the adaptive control (ADL) module is to reduce energy consumption by preventing trains from making unnecessary stops and having to go through the energy-intensive process of accelerating from standstill. ADL calculates the optimum speed and sends this to a tablet used by the engine driver. ADL greatly reduces unplanned stops at signals, saving energy and enhancing passenger comfort.

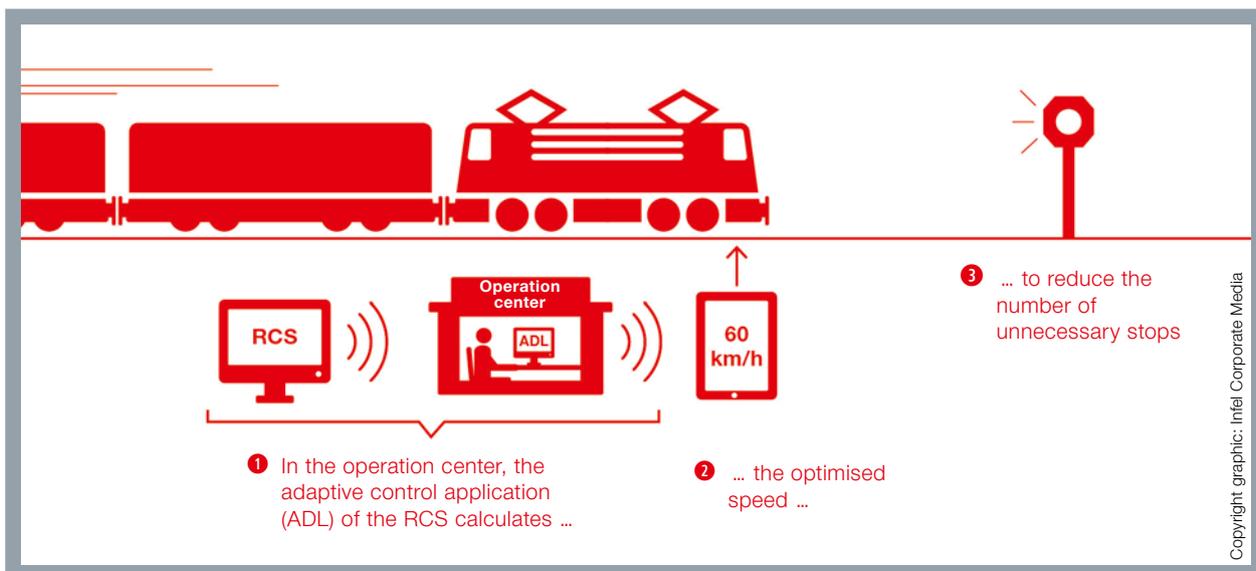
ADL’s core function is to calculate an energy-optimised driving profile for train journeys in real time while traffic is moving. In order to do this, it analyses the entire network online while evaluating the driving situations of all the trains on it. The energy-optimised driving profile calculated by the ADL for an individual train takes into account the timetable requirements, as well as the current operating situation of all other trains and the forecast for the train in question. These calculations are done centrally on the server for all trains on the network in a continuous, near-real-time optimisation process.

The optimisation of the driving profile is based on the idea of distributing existing driving time reserves throughout a train journey in a way that uses as little traction current as possible, does not have an impact on any other train journeys and does not lead to unplanned stops at signals. The driving time reserves to be allocated to a train can come from, for example, a predicted unplanned stop at a signal (detection of conflict resulting in a stop). If, for the purpose of optimisation, a train reduces its speed when approaching a signal instead of stopping at it, an overall reduction in energy consumption can be expected.



MeldLF	km	S	AE	Neuchâtel	N180	An	Ab	14:30:00 13.10.14
79.4	2	10	1306	St-Blaise CFF	135	(14:29)		Zug 1524
km: 77.381 - 76.947								
77.8				La Coudre	4 R/S			
42.9	5	0		Neuchâtel	D,A 110-90	95	14:32	14:34
75.3			R 1306					ADL 1524
73.9	0	2		Ne-Vauseyon		95	14:36	Filter
km: 72.254 - 71.585								
73.8				C Sort.	110			
73.7				Block	31 D2/D1			
72.4	0	10		Neuchâtel-Serrières		135	(14:36)	
70.3	5	5		Auvernier		135	(14:37)	-00:00:40
67.7	5	5	1307	Colombier	110	130	135	(14:39)
66.3	7	10		Boudry	130	135	160	(14:39)
km: 66.130 - 65.200								
66.2				C Sort.	140			
Langsamfahrstelle								
St.-Blaise - Neuchâtel km: 77.381 - 76.947 VMax = 80								
25.08.2014 09:00 - 14.11.2014 16:00 804-803								
BIRL+2 Stabilité de la voie.								
Vopt 75 km/h								

Information on the engine driver's tablet.



The double "green wave".

The rail traffic dispatcher in the operation center approves the driving recommendations, which are then immediately transmitted to the engine driver. At present, almost over 2,000 trains are controlled every day, saving more than 200,000 kilowatt hours a day. Over a whole year, this is equal to the energy consumption of 18,500 households.

SBB is an innovative rail operator that uses the very latest technology. With the "green wave"/ADL, SBB can maintain its punctuality levels despite higher volumes of traffic and an increase in construction and maintenance work, all while reducing its energy consumption.

- Travelling by rail is a punctual, safe and environmentally friendly way to travel. SBB is a sustainable and environmentally conscious railway company. The "green wave"/ADL will allow it to reduce its energy consumption, thus playing its part in the government's energy strategy for the benefit of everyone in Switzerland.
- The "green wave"/ADL enables engine drivers to drive smoothly by avoiding unnecessary stops. This improves energy efficiency, cuts energy costs and reduces wear and tear on the rolling stock and lines.
- Just starting up a heavy train uses a lot of energy. A freight train weighing 1,000 tonnes takes as much energy to go from 80 km/h to a standstill and start back up again as a household uses in a week. This means that the potential for saving energy is especially high in freight services.

- The "green wave"/ADL communicates speed recommendations to locomotive drivers, who then decide whether or not to implement these recommendations.

Contact

Swiss Federal Railways SBB
 Infrastructure Sales
 Hilfikerstrasse 3
 3000 Berne 65, Switzerland
 +41 51 222 88 88

sales@sbb.ch
 www.sbb.ch