NeTrainSim
Open-Source Network Train Simulator

Summary Report

Project: Qatar Rail Network
Network: Qatar
Author: Julia Sepulveda

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NeTrainSim SIMULATION SUMMARY

Version: 0.1.2

Simulation Time: 0:00:00:00 (dd:hh:mm:ss)

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+ NETWORK STATISTICS:

|_ Network Name	Qatar
|_ Nodes Count	8
|_ Links Count	7
|_ Total Lengths of All Links (meters)	286,500
|_ Total Lengths of All Links with Catenary (meters)	286,500
|_ Total Signals	14
|_ Total Number of Trains on Network	1
|_ Percentage of Links with Catenaries to All Links (%)	100
|_ Catenary Total Energy Consumed (KW.h)	20,188.746
|_ Average Catenary Energy Consumption per Net Weight (KW.h/ton)	42.060
|_ Average Catenary Energy Consumption per Net ton.km (KW.hx10^3/ton.km)	146.806
|_ Catenary Energy Consumed (KW.h)	20,188.746
|_ Catenary Energy Regenerated (KW.h)	0

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+ AGGREGATED/ACCUMULATED TRAINS STATISTICS:

|-> Train Information:

  |-> Locomotives Summary:

|_ Number of Locomotives/Cars	2/20
|_ Locomotives (Technology, count)	{ Electric Locomotive: 2}
|_ Operating Locomotives to End of Trains Trip	2

  |-> Cars Summary:

|_ Cars Count	20
|_ Cars (Types, count)	{ Cargo Car: 20}

  |-> Moved Commodity:

|_ Total Moved Cargo (ton)	480
|_ Total ton.km (ton.Km)	137,520

|-> Route Information:

|_ Trains Reached Destination	1
|_ Trains Total Path Length (km)	286.500

|-> Train Performance:

|_ Operating Time	0:03:33:49
|_ Average Speed (meter/second)	22.3324
|_ Average Acceleration (meter/square second)	2
|_ Average Travelled Distance (km)	286.500
|_ Consumed and Regenerated Energy:	
|_ Total Net Energy Consumed (KW.h)	20,187.481
|_ Total Energy Consumed (KW.h)	20,188.746
|_ Total Energy Regenerated (KW.h)	1.266
|_ Average Net Energy Consumption per Net Weight (KW.h/ton)	42.057
|_ Average Net Energy Consumption per Net ton.km (KW.hx10^3/ton.km)	146.797
|_ Tank Consumption:	
|_ Total Fuel Consumed (litters)	{ }
|_ Battery Consumption:	
|_ Total Energy Consumed (kW.h)	0

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|_ Total Energy Regenerated (kW.h)	1.266
|_ Total Net Energy Consumed (kW.h)	-1.266
|_ Average Net Energy Consumed per Net Weight (kW.h/ton)	-0.003
|_ Average Net Energy Consumed per Net ton.km (kW.hx10^3/ton.km)	-0.009
|_ Tank/Battery Status:	
|_ Average Locomotives Tank Status (%)	0
|_ Average Locomotives Battery Status (%)	60.016
|_ Average Tenders Tank Status (%)	0
|_ Average Tenders Battery Status (%)	0
|-> Statistics:	
|_ Average Delay Time To Each Link Speed	0:01:09:07
|_ Average Delay Time To Max Links speed	0:01:09:07
|_ Average Stoppings	0.691

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+ TRAIN STATISTICS:

|-> Train Information:	
|-> Train ID	1
|-> Locomotives Summary:	
|_ Number of Locomotives/Cars	2/20
|_ Locomotives (Technology, count)	{ Electric Locomotive: 2}
|_ Operating Locomotives to End of Trains Trip	2
|-> Cars Summary:	
|_ Cars Count	20
|_ Cars (Types, count)	{ Cargo Car: 20}
|-> Moved Commodity:	
|_ Total Moved Cargo (ton)	480
|_ Total ton.km (ton.Km)	137,520
|-> Route Information:	
|_ Train Reached Destination	true
|_ Start Node	1
|_ Destination Node	8
|_ Train Total Path Length (km)	286.500
|-> Train Performance:	
|_ Operating Time	0:03:33:49
|_ Average Speed (meter/second)	22.3324
|_ Average Acceleration (meter/square second)	2
|_ Travelled Distance (km)	286.500
|_ Consumed and Regenerated Energy:	
|_ Single-Train Trajectory Optimization Enabled	false
|_ Total Net Energy Consumed (KW.h)	20,187.481
|_ Total Energy Consumed (KW.h)	20,188.746
|_ Total Energy Regenerated (KW.h)	1.266
|_ Average Net Energy Consumption per Net Weight (KW.h/ton)	42.057
|_ Average Net Energy Consumption per Net ton.km (KW.hx10^3/ton.km)	146.797
|_ Tank Consumption:	
|_ Total Fuel Consumed (litters)	{ }
|_ Battery Consumption:	
|_ Total Energy Consumed (kW.h)	0
|_ Total Energy Regenerated (kW.h)	1.266
|_ Total Net Energy Consumed (kW.h)	-1.266
|_ Average Net Energy Consumed per Net Weight (kW.h/ton)	-0.003

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|_ Average Net Energy Consumed per Net ton.km (kW.hx10^3/ton.km)	-0.009
|_ Total Energy Consumed (KW.h)	20,187.481
|_ Total Consumed (KW.h)	20,188.746
|_ Total Regenerated (KW.h)	1.266
|_ Total Fuel Consumed (litters)	{ }
|_ Total Energy Consumption per ton.km (KW.h/ton.km)	0.147
|_ Total Energy Consumed by Region (Region:KW.h)	{ Not Defined: 20,187.481}
|_ Average Locomotives Battery Status (%)	60.016
|-> Statistics:	
|_ Total Delay Time To Each Link Speed	0:01:09:07
|_ Total Delay Time To Max Links speed	0:01:09:07
|_ Total Stoppings	0.691
|-> Locomotives Details:	
|_ Locomotive Number	1
|_ Is Locomotive On	true
|_ Power Type	Electric Locomotive
|_ Battery Initial Charge (KW.h)	2,400
|_ Battery Current Charge at End of Trip (KW.h)	2,400.633
|_ Battery Initial State of Charge (%)	60
|_ Battery Current State of Charge at End of Trip (%)	60.016
|_ Battery Cumulative Consumed Energy (kW.h)	0
|_ Battery Cumulative Regenerated Energy (kW.h)	0.633
|_ Battery Cumulative Net Consumed Energy (kW.h)	-0.633
|_ Locomotive Number	2
|_ Is Locomotive On	true
|_ Power Type	Electric Locomotive
|_ Battery Initial Charge (KW.h)	2,400
|_ Battery Current Charge at End of Trip (KW.h)	2,400.633
|_ Battery Initial State of Charge (%)	60
|_ Battery Current State of Charge at End of Trip (%)	60.016
|_ Battery Cumulative Consumed Energy (kW.h)	0
|_ Battery Cumulative Regenerated Energy (kW.h)	0.633
|_ Battery Cumulative Net Consumed Energy (kW.h)	-0.633

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