

DOCKETED

Docket Number:	18-HYD-04
Project Title:	Draft Solicitation Concepts for Light-Duty Hydrogen Refueling Infrastructure
TN #:	229880
Document Title:	NREL Data Collection Tool
Description:	N/A
Filer:	Jessica Martinez
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	9/30/2019 7:16:21 AM
Docketed Date:	9/30/2019

Component	Variable	Value	Units	Description
Delivery	gasdeliverycapable		logical [0,1]	Gas delivery to station
Delivery	liquiddeliverycapable		logical [0,1]	Liquid delivery to station
Production	productioncapable		logical [0,1]	On-site production at station
Storage	hpstoragecapable		logical [0,1]	High pressure storage at station
Storage	mpstoragecapable		logical [0,1]	Medium pressure storage at station
Storage	lpstoragecapable		logical [0,1]	Low pressure storage at station
Production	SOCForProduction		%	Storage level trigger for production
Production	effElyzr		kWh/kg	Production unit efficiency
Production	Felectrolyzer_kgperh		kg/h	flow/production rate
Production	PmaxElectrolyzer		MPa	output max pressure
Storage	VhpBank		m3	Volume high pressure (HP) bank %HITRF: 0.342925
Storage	VmpBank		m3	Volume medium pressure (MP) bank %HITRF: 1.3224;
Storage	VlpBank		m3	Volume low pressure (LP) bank %Default: 2.6108;
Storage	VlqBank		m3	Volume of liquid (LQ) bank (22.7125 = 6000 gallons)
Storage	numHPbanks		#	Number of high prssure banks
Storage	numMPbanks		#	Number of medium pressure banks
Storage	numLPbanks		#	Number of low pressure banks
Storage	numLQbanks		#	Number of liquid banks
Storage	PhpBankMin		Mpa	Minimum HP bank pressure (Must use whole numbers or adjust pressure lookup function, Must adjust dispensing algorithm if min Php is less than or equal to 0)
Storage	PmpBankMin		MPa	Minimum MP bank pressure (Must use whole numbers or adjust pressure lookup function, Must adjust dispensing algorithm if min Pmp is less than or equal to 0)
Storage	PlpBankMin		MPa	Minimum LP bank pressure
Storage	PhpBankMax		MPa	Maximum HP bank pressure
Storage	PmpBankMax		MPa	Maximum MP bank pressure
Storage	PlpBankMax		MPa	Maximum LP bank pressure
Storage	PvapStart		MPa	Vaporizer output pressure (must be greater than MP compressor minimum) (www.linde-engineering.com.hk/internet.le.le.hkg/zt/images/P_3_4_e_10_150dpi227_5776.pdf?v=.)
Storage	hpDispense		logical [0,1]	High pressure bank Eligible for fill, 1=eligible, 0=not eligible

sample values

90
54.3
0
0
0.33
1
2.6
0
3
1
3
0
45
0
0
90
41
24
1

Storage	mpDispense		logical [0,1]	Medium pressure bank Eligible for fill, 1=eligible, 0=not eligible	1
Storage	lpDispense		logical [0,1]	Low pressure bank Eligible for fill, 1=eligible, 0=not eligible	1
Compressor	AllowDirectCompress		logical [0,1]	Allow compressor to fill bank which are used for dispensing?, 1=yes, 0=no.	1
Compressor	NumHPc		#	Number of high pressure compressors	1
Compressor	NumMPc		#	Number of medium pressure compressors	1
Compressor	PminHPc		MPa	Minimum High pressure compressor (HPc) pressure	20
Compressor	PminMPc		MPa	Minimum Medium pressure compressor (MPc) pressure	0.5
Compressor	PmaxHPc		Mpa	Maximum HPc pressure	93
Compressor	PmaxMPc		Mpa	Maximum MPc pressure	42
Compressor	Fhp1		kg/h	HPc maximum flowrate	10
Compressor	Fmp1		kg/h	MPc maximum flowrate	5
Compressor	Flq1		kg/h	Liquid pump maximum flowrate	200
Compressor	Fvap1		kg/h	Vaporizer maximum flowrate	200
Compressor	effHP		kWh/kg	HPc efficiency (includes BOP)	4
Compressor	effMP		kWh/kg	MPc efficiency (includes BOP)	2
Chiller	setPointPC		degC	Pre-cooling setpoint	-35
Chiller	effPC		kWh/kg	Pre-cooling efficiency	1.5
Chiller	powerPC		kW	fixed Pre-cooling power	0
Chiller	recTimePC		s		1800
Dispenser	staTemp		degC	Ambient temperature	25
Dispenser	max_disp		#	Maximum number fueling positions capable of simultaneous fill	1
Delivery	startMassDel		kg	Mass per delivery	0
Delivery	numDeliveries		#/day	Number of deliveries per day	0
Delivery	numBanksDel		#	Number of banks delivering hydrogen	0
Delivery	Pdel		MPa	Pressure of delivery truck	0
Delivery	Fdel		kg/s	Delivery flow rate	1
Delivery	Del_wait_time		s	Delivery truck dwell time	3600
Delivery	Delivery_type		selector [1,2]	Fuel delivery type, 1=gaseous, 2=liquid	1
Liquid	FlqTruck		kg/s	Liquid truck delivery rate to storage	0.446
Liquid	effPmpLQ	0	kWh/kg	Liquid pump efficiency (kWh/kg of station capacity) (HRSAM v1.1)	0.664
Liquid	effRef	0	kWh/kg	Refrigeration efficiency (HRSAM v1.1) (is this more representative as a constant (kW/s) or as specific energy consumption (kW/kg/s))	0.26

Liquid	BoilOff	0	kg/day	Boil-off (HRSAM v1.1 for 200kg/day capacity station) (Not wired up yet, consider calculating boil-off based on physical properties)
Liquid	effVAP	0	kWh/kg	Vaporizer efficiency (HRSAM, Evaporator heated by natural draft so no effect)

0
0