

HYL/ENERGIRON PROJECTS REFERENCE LIST

N°	DRP name	Location	Process	Product	Design capacity, MTPY	Product quality, Metallization % (Carbon %)	Start-up
1	Hylsa, 1M ¹	Monterrey, Mexico	HYL I	HDRI	0.10	85% (2.5%)	1957
2	Hylsa, 2M	Monterrey, Mexico	HYL I	CDRI	0.25	85% (2.5%)	1960
3	Tamsa, Tamsa	Veracruz, Mexico	HYL I	CDRI	0.28	85% (2.5%)	1967
4	Hylsa, 1P	Puebla, Mexico	HYL I	CDRI	0.31	85% (2.5%)	1969
5	Hylsa, Pilot plant	Monterrey, Mexico	HYL ZR	CDRI	0.01	92% (2.5%)	1974
6	Ternium Hylsa, 3M	Monterrey, Mexico	HYL I	CDRI	0.48	85% (2.5%)	1974
7	Usiba, Usiba I	Salvador, Bahia, Brazil	HYL I	CDRI	0.23	85% (2.5%)	1974
8	SIDOR, Sidor HYL I	Matanzas, Venezuela	HYL I	CDRI	0.36	85% (2.5%)	1976
9	Ternium Hylsa, 2P	Puebla, Mexico	HYL I	CDRI	0.63	85% (2.5%)	1977
10	PTKS, Krakatau I	Kota Baja, Indonesia	HYL I	CDRI	0.56	85% (2.5%)	1978
11	PTKS, Krakatau II	Kota Baja, Indonesia	HYL I	CDRI	0.56	85% (2.5%)	1978
12	SCIS, SEIS-I	Khor-Al-Zubair, Iraq	HYL I	CDRI	0.27	85% (2.5%)	1979
13	SCIS, SEIS-II	Khor-Al-Zubair, Iraq	HYL I	CDRI	0.27	85% (2.5%)	1979
14	Hylsa, 2M5	Monterrey, Mexico	HYL III	CDRI	0.25	94% (2.7%)	1980
15	SIDOR, Sidor HYL A	Matanzas, Venezuela	HYL II	CDRI	0.57	90% (2.5%)	1980
16	SIDOR, Sidor HYL B	Matanzas, Venezuela	HYL II	CDRI	0.7	90% (2.5%)	1980

17	SIDOR, Sidor HYL C	Matanzas, Venezuela	HYL II	CDRI	0.7	85% (2.5%)	1981
18	Ternium Hylsa, 3M5	Monterrey, Mexico	HYL III	CDRI	0.50	94% (3.0%)	1983
19	SCIS, SEIS-III	Khor-Al-Zubair, Iraq	HYL I	CDRI	0.47	85% (2.5%)	1988
20	SCIS, SEIS-IV	Khor-Al-Zubair, Iraq	HYL I	CDRI	0.47	85% (2.5%)	1988
21	Arcelor Mittal Lazaro Cardenas, IA	Lazaro Cardenas, Mexico	HYL III	CDRI	0.50	94.8% (2.1%)	1988
22	Arcelor Mittal Lazaro Cardenas, IB	Lazaro Cardenas, Mexico	HYL III	CDRI	0.50	94.8% (2.1%)	1988
23	Arcelor Mittal Lazaro Cardenas, 2A	Lazaro Cardenas, Mexico	HYL III	CDRI	0.50	94.8% (2.1%)	1990
24	Arcelor Mittal Lazaro Cardenas, 2B	Lazaro Cardenas, Mexico	HYL III	CDRI	0.50	94.8% (2.1%)	1990
25	Khouzestan Steel Co, ASCO I	Ahwaz, Iran	HYL I	CDRI	0.35	85% (2.5%)	1993
26	Welspun, Welspun Maxsteel Ltd. ²	Raigad, India	HYL III	HBI	0.75	93.6% (1.1%)	1993
27	Perwaja Steel, PSSB I	Kemaman, Malaysia	HYL III	CDRI	0.60	95.0% (2.0%)	1993
28	Perwaja Steel, PSSB II	Kemaman, Malaysia	HYL III	CDRI	0.60	95.0% (2.0%)	1993
29	PTKS, PTKS 1	Kota Baja, Indonesia	HYL III	CDRI	0.68	93.3% (2.3%)	1993
30	PTKS, PTKS 2	Kota Baja, Indonesia	HYL III	CDRI	0.68	93.3% (2.3%)	1993
31	Khouzestan Steel Co, ASCO II	Ahwaz, Iran	HYL I	CDRI	0.34	90% (2.5%)	1994

32	Khouzestan Steel Co, ASCO III	Ahwaz, Iran	HYL I	CDRI	0.34	90% (2.5%)	1994
33	Usiba, Usiba II	Salvador, Bahia, Brazil	HYL III	CDRI	0.31	91.3% (2.8%)	1994
34	Hylsa, 2P5	Puebla, Mexico	HYL III	CDRI	0.61	93.3% (3.4%)	1995
35	Hylsa, 4M	Monterrey, Mexico	HYL ZR	HDRI+CDRI	0.68	94.4% (3.6%)	1998
36	Hadeed, Module D ³	Al Jubail, Saudi Arabia	HYL III	CDRI	1.10	94.4% (2.4%)	1999
37	Lebedinsky GOK, LGOK I	Gubkin, Russia	HYL III	HBI	0.9	95.1% (1.1%)	1999

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38	Briqven (former Matesi), Module A	Puerto Ordaz, Venezuela	HYL III	HBI	0.75	93.0% (1.8%)	2000
39	Briqven (former Matesi), Module B	Puerto Ordaz, Venezuela	HYL III	HBI	0.75	93.0% (1.8%)	2000
40	Ternium Hylsa, 3M5	Monterrey, Mexico	HYL ZR	CDRI	0.50	94.0% (3.9%)	2001
41	Welspun Maxsteel Ltd, Welspun 2	Raigad, India	HYL ZR	CDRI	0.6	94.0% (3.0%)	2007
42	Gulf Sponge Iron, Al Nasser	Ubu Dhabi, UAE	HYL ZR	CDRI	0.2	93.0% (3.5%)	2007
43	Emirates Steel Industries, GHC I	Abu Dhabi, UAE	ENERGIRON III	HDRI+CDRI	2.0	94.0% (2.0%)	2009

44	Emirates Steel Industries, GHC II	Abu Dhabi, UAE	ENERGIRON III	HDRI+CDRI	2.0	94.0% (2.0%)	2011
45	Suez Steel, Suez Steel Company ⁴	Cairo, Egypt	ENERGIRON ZR	HDRI+CDRI	2.0	94.0% (3.5%)	2013
46	Nucor Steel, Nucor ⁵	Lousiana, USA	ENERGIRON ZR	CDRI	2.5	96.0% (3.5%)	2013
47	EZZ Rolling Mills, EZZ Rolling ⁶	Cairo, Egypt	ENERGIRON III	CDRI	1.9	94.0% (2.0%)	2015
48	Thai-chin steel plant	Myanmar	ENERGIRON ZR	CDRI	0.5	94.0% (3.5%)	On hold
49	Empresa Siderurgica Mutun (ESM)	Bolivia	ENERGIRON ZR	CDRI	0.2	93.0% (3.5%)	2025
50	HYBRIT HYBRIT Development AB	Sweden	ZR Pilot Plant for 100% Hydrogen	DRI-HBI	1 tph	93.0% (0-4.0%)	2021
51	Ecolant OMK	Vyksa, Russia	ENERGIRON III	HOT+CDRI	2.5	94.0% (2.0%)	On hold
52	μDRAL Salzgitter Flachstahl	Germany	ZR Pilot Plant for 100% Hydrogen	DRI-HBI	100 kg/h	93.0% (0-4.0%)	2022
53	HBZX Hebei Iron & Steel Group (HBIS)	Hebei, China	ENERGIRON ZR (70% H ₂)	CDRI	0.55	94.0% (2.0%)	2023
54	Baosteel Zhanjiang Iron & Steel Baowu Group	Zhanjiang, China	ENERGIRON ZR	CDRI	1.0	94.0% (3.0%)	2024

55	SALCOS Salzgitter Flachstahl	Salzgitter, Germany	ENERGIRON ZR (up to 70% H ₂)	HOT+CDRI	2.1	94.0% (1.5 - 4.0%)	In progress
56	Heracless Tata Steel Netherlands	IJmuiden, Netherlands	ENERGIRON ZR (up to 80% H ₂)	HOT+CDRI	2.5	94.0% (0.5 - 4.5%)	Design in progress
57	EDRP Nippon Steel	Japan	ZR Pilot Plant for 100% Hydrogen	DRI	1 tph	93.0% (0-4.0%)	In progress
58	5M/Ternium	Pesqueria, Mexico	ENERGIRON ZR (up to 100% H ₂)	HOT+CDRI	2.1	94.0% (2.0 - 4.5%)	In progress
59	MD1 Plant LKAB (Hybrit)	Gällivare, Sweden	ENERGIRON ZR (100% H ₂)	CDRI/HBI	1.35	94.0%	Design in progress
60	Jindal Steel DUQM#1	Duqm Oman	ENERGIRON ZR (up to 80% H ₂)	HBI+HDRI	2.5	94.0% (2.5%)	In progress
61	HYDRA, Rina SpA	Rome Italy	ZR Pilot Plant for 100% Hydrogen	CDRI+HDRI +HBI	100 kg/h	94.0% (2.5%)	In progress
62	Jindal Steel DUQM#2	Duqm Oman	ENERGIRON ZR (up to 80% H ₂)	HBI+HDRI	2.5	94.0% (2.5%)	In progress
63	Hyundai Steel	Louisiana USA	ENERGIRON ZR (up to 80% H ₂)	HDRI + CDRI	2.5	94.0% (2.5%)	In progress

64	NeoSmelt	Kwinana, Australia	ENERGIRON ZR Pilot Plant	CDRI	50 kt/y	94.0% (0-4%) NG-H ₂ ready	Design in progress
65	Gravithy	Fos-sur-Mer, France	ENERGIRON ZR (100% H ₂)	HBI	2.0	94.0%	Design in progress

Footnotes

- 1= First Direct Reduction industrial facility plant
- 2= Net electrical Energy producer
- 3= Zero water consumption
- 4= Minimum Energy consumption; Highest hot DRI to EAF
- 5= First 2,5 mtpy plant
- 6= Fastest start-up