

PARTIAL USER LIST FOR PIPELINE BUNDLED TECHNOLOGIES

Project Name	Location	Service	Pipeline Diameter (in)	Pipeline Length (m)	Maintain Temp (°C)	Bundled Technology	Year
Maurepas Swamp VGO Pipeline	USA	Vacuum Gas Oil (VGO)	12	57,937	54	Skin-Effect Heating with Buried & Pre-Insulated Pipe & Fiber Optic DTS, Under Water	2017
Yamal LNG	Russia	Fire Water, Process Drain, Fuel Gas	3–48	108,100	5–60	Skin-Effect Heating	2017
Amite Project-Norco	USA	HGCO, Vacuum Gas Oil (VGO), Gas Oil	12	3,274	60 & 71	Skin-Effect Heating	2016
Amite Project-Convent	USA	Gasoil, HGCO	12	6,620	60 & 71	Skin-Effect Heating	2016
Sturgeon Refinery Project	Canada	Diluted Bitumen, Sour Stripped Water, Treated Wastewater, Desalter Effluent Brine, UCO, SR MGVO	4–16	14,195	10, 40 & 50	Skin-Effect Heating	2016
American Multinational Oil & Gas Exploration & Production Company Caustic Membrane Line	USA	Membrane Caustic	8	2,575	27	Skin-Effect Heating	2016
Canadian Energy Company Wellpad Flowlines	Canada	Annulus Gas	6 & 10	3,151	10	Skin-Effect Heating	2016
Crude Oil Distillation Plant	Russia	Diesel Fuel, Heavy Fuel Oil	4–13	10,009	5 & 80	Skin-Effect Heating	2016
Dutch Multinational Refinery Amine Lines Project	Canada	Amine	10 & 14	3,048	10	Skin-Effect Heating	2015
UAE National Oil Company Middle East Sulphur Pipelines	UAE	Sulphur	12	24,200	135	Skin-Effect Heating with Pre-Insulated Pipe & Fiber Optic DTS	2014
Dakota Prairie Refinery	USA	ATB / AGO	8	1,539	60	Skin-Effect Heating	2014
American Multinational Energy Corporation Chuandongbei Gas Project	China	Sulphur	6	2,040	140	Skin-Effect Heating	2014
UAE National Oil Company Middle East Sulphur Pipelines	UAE	Sulphur	8 & 12	74,000	135	Skin-Effect Heating with Pre-Insulated Pipe & Fiber Optic DTS	2014
Black Gold Oil Sands	Canada	Sour Gas, Steam Condensate	4	6,800	25	Skin-Effect Heating	2014
Daesan Refinery #1 LBO Project	Korea	Lube Base Oil	6–16	9,116	47	Skin-Effect Heating	2014
Yanbu Sulphur Refinery SP6	Saudi Arabia	Sulphur, Acid Flare, Slop Line	6–30	5,133	95–135	Skin-Effect Heating	2014
South Jetty North Refinery Terminal	India	Fuel Oil	18	21,245	90	Skin-Effect Heating with Buried & Pre-Insulated Pipe	2014
American Petroleum & Petrochemical Manufacturer Dock 4 HVCO Blender	USA	HVCO	30	957	66	Skin-Effect Heating	2014
Sulphur Long Circulation Pipe Upgrade Project	Indonesia	Sulphur	3	1,468	141	Skin-Effect Heating with Pre-Insulated Pipe & Fiber Optic DTS	2014

Project Name	Location	Service	Pipeline Diameter (in)	Pipeline Length (m)	Maintain Temp (°C)	Bundled Technology	Year
German Chemical Company Benzene Pipeline	USA	Benzene	6	2,887	21	Skin-Effect Heating	2013
Novy Port-Mys Kamenny Facility	Russia	Crude Oil	8	102,000	30	Skin-Effect Heating	2013
Yamburgskaya Pipeline	Russia	Water	6	18,760	7	Skin-Effect Heating	2013
Jubail Export Refinery	Saudi Arabia	Sulphur, Benzene, Paraxylene, Heavy Fuel Oil	6–20	58,507	15–135	Skin-Effect Heating	2013
TR4 Facility	Thailand	Sulphur	8	790	145	Skin-Effect Heating	2013
Dutch Multinational Puget Sound Facility	USA	Steam Condensate	4	1,401	6	Skin-Effect Heating	2013
Canadian Energy Company Bantrel Plant	Canada	Crude Oil	3–10	1,629	10	Skin-Effect Heating	2013
Samburgskoe Gas Field	Russia	Water	4	9,620	10	Skin-Effect Heating	2012
Innovia Test Track	USA	Running Surface / Snow Melting Freeze Protection	Embedded	3,318	10	Concrete Embedded Skin-Effect Heating	2012
Indian Oil & Gas Exploration & Production Company Aishwariya Pipeline	India	Crude Oil	10	10,000	65	Skin-Effect Heating with Buried & Pre-Insulated Pipe	2012
Daesan Refinery #2 BTX Pipeline	Korea	BTX	18	3,590	18	Skin-Effect Heating	2012
Cueta & Melilla Pipelines	Spain	Fuel Gas	3	4,206	50	Skin-Effect Heating	2012
American Multinational Oil & Gas Corporation West Gathering Pipeline	USA	Gas Gathering	8	7,814	30	Skin-Effect Heating	2012
Novoportovskoe Field Facility	Russia	Crude Oil	8	69,708	40	Skin-Effect Heating	2012
Middle East Sulphur Refinery	UAE	Sulphur	6	1,730	140	Skin-Effect Heating with Pre-Insulated Pipe & Fiber Optic DTS	2012
Marine Transfer Pipeline	USA	DEA	8	2,097	32	Skin-Effect Heating	2012
Bitumen Pipeline	Malaysia	Bitumen	10	2,900	169	Skin-Effect Heating	2012
Hydro Holiwood Facility	Canada	Crude Oil	18	1,250	30	Skin-Effect Heating	2012
UAE National Oil Company Ruwais Refinery Expansion PKG7 Project	UAE	Crude Oil	6–36	23,600	80	Skin-Effect Heating	2012
Dutch Multinational Port Arthur, TX Refinery	USA	H&P, Off-Gas, Cut Residual, Vacuum Gas Oil (VGO), H&R Slop	3–14	8,097	46–69	Skin-Effect Heating	2012
Dutch Multinational Refinery Scotford Rundown Line	Canada	Sulphur	4	1,730	135	Skin-Effect Heating with Pre-Insulated Pipe & Fiber Optic DTS	2012
Canadian Energy Company VRU CLC Facility	Canada	STF VRU Vapor	6	1,362	82	Skin-Effect Heating	2012
Grass Root Project Pipeline	Russia	Water	10	3,745	5	Skin-Effect Heating	2012
Yanbu Sulphur Refinery SP3	Saudi Arabia	Sulphur	6	4,400	135	Skin-Effect Heating	2012
Yanbu Sulphur Refinery 2 SP3	Saudi Arabia	HFO Transfer	24	17,000	50	Skin-Effect Heating	2012
Mundra Pipeline	India	Palm Oil	8	12,000	55	Skin-Effect Heating	2011
EMMSA Facility	Portugal	Crude Oil	6	6,090	30	Skin-Effect Heating	2011
Indian State-Owned Oil & Natural Gas Company Basin Ridge Terminal Chennai	India	LSHS	16	700	80	Skin-Effect Heating	2011
British Multinational North American Asphalt Barge Upgrade	USA	Asphalt	12	1,470	149	Skin-Effect Heating	2011
Indian Oil & Gas Exploration & Production Company Bhagyam Pipeline	India	Crude Oil	24	24,000	55	Skin-Effect Heating with Buried & Pre-Insulated Pipe, Under Water	2011
American Multinational Energy Corporation Vapor Pipeline	USA	SWS Vapor	12	1,018	116	Skin-Effect Heating	2011

Project Name	Location	Service	Pipeline Diameter (in)	Pipeline Length (m)	Maintain Temp (°C)	Bundled Technology	Year
American Multinational Energy Corporation Transmission Pipelines	USA	Sour Gas, Residue, Fuel Gas, Process, Spent Caustic Soda, Sour Water	3–16	16,155	10–149	Skin-Effect Heating	2011
American Multinational Energy Corporation Flare Gas Pipeline	USA	Flare Gas	8	1,166	54	Skin-Effect Heating	2011
Intinskaya CS-6 Facility	Russia	LNG / MGBU	3–6	15,350	8–10	Skin-Effect Heating	2011
Malopernaskaya Facility	Russia	LNG / MGBU	3–6	28,510	5–8	Skin-Effect Heating	2011
Syninskaya CS-7 Facility	Russia	LNG / MGBU	3–6	12,872	8–10	Skin-Effect Heating	2011
Usinakaya Facility	Russia	LNG / MGBU	2–6	15,616	5–8	Skin-Effect Heating	2011
Vorkutinskaya CS-4 Facility	Russia	LNG / MGBU	3–6	18,585	8–10	Skin-Effect Heating	2011
Yalanskaya Compressor Station	Russia	LNG / MGBU	2–6	46,295	5–8	Skin-Effect Heating	2011
Chikshinskaya CS-8 Facility	Russia	LNG / MGBU	3–6	22,720	5–8	Skin-Effect Heating	2011
Gagaratskaya Facility	Russia	LNG / MGBU	3–6	28,588	8–10	Skin-Effect Heating	2011
Daesan Refinery #2 HOU Project	Korea	Sulphur	12–20	10,000	79–149	Skin-Effect Heating	2011
Petrochemical Benzene Project	Korea	Benzene	8	2,050	20	Skin-Effect Heating	2011
Korean BPA Producer Facility	Korea	Phenol	8	1,650	55	Skin-Effect Heating	2011
NGChK - K17 / Novourengoisky Facility	Russia	Water	4	7,200	10	Skin-Effect Heating	2011
KS Baidarackaya Gulf Facility	Russia	Water	2–8	20,253	5–16	Skin-Effect Heating	2010
Korean Chemical Company PFO Transportation	Korea	PFO	6	1,830	50	Skin-Effect Heating	2010
Shuqaiq II Independent Water & Power Pipeline	Saudi Arabia	Sub-Sea HFO	20	1,700	60	Skin-Effect Heating	2010
Taranto Refinery	Italy	Sulphur	4	765	145	Skin-Effect Heating with Pre-Insulated Pipe	2010
Alumar Refinery Unit 2 Expansion	Brazil	Fuel Oil	10 & 20	12,249	50–60	Skin-Effect Heating	2009
LSDP Project	Bahrain	Sulphur	6	2,500	138	Skin-Effect Heating	2009
Indian Oil & Gas Exploration & Production Company Mangala Pipeline	India	Crude Oil	24	700,000	65	Skin-Effect Heating with Buried & Pre-Insulated Pipe	2009
American Multinational Chemical Corporation Facility	Spain	ICL	2	563	60	Skin-Effect Heating	2009
Indian State-Owned Oil & Natural Gas Company Vizag Refinery	India	Bitumen	16	4,000	140	Skin-Effect Heating	2009
Tangiers Hydrocarbon Facility	Morocco	Fuel Oil	20	5,680	60	Skin-Effect Heating	2009
Vankor Facility	Russia	Crude Oil, Water	6–32	118,246	20	Skin-Effect Heating with Pre-Insulated Pipe	2009
Zielona Góra, Poland Refinery	Poland	Fuel Oil	6	14,000	40	Skin-Effect Heating	2009
Zielona Góra, Poland Refinery	Poland	Fuel Oil	6	1,430	40	Skin-Effect Heating	2009
Russian Electronics Manufacturing Company Fuel Oil Pipeline	Russia	Fuel Oil	6	6,447	45	Skin-Effect Heating	2009
Jamnagar Refinery	India	Vacuum Residue	16	18,680	190	Skin-Effect Heating	2009
Jamnagar Refinery	India	Vacuum Residue	16	7,544	190	Skin-Effect Heating	2009
British Multinational Pipeline	USA	Asphalt	8 & 12	1,832	93–177	Skin-Effect Heating	2008
Oil & Gas Exploration, Development & Production Company Sulphur Pipeline	Canada	Sulphur	6	4,100	138	Skin-Effect Heating with Pre-Insulated Pipe & Fiber Optic DTS	2008
Mahon Facility	Spain	Fuel Oil	12	820	50	Skin-Effect Heating with Buried & Pre-Insulated Pipe	2008
Tank Terminal Company GLC Facility	USA	TDI, Butadiene, MDI	4–12	15,701	32–38	Skin-Effect Heating	2008
Russian Oil Company Jurassic Pipeline	Russia	Water	12 & 16	14,000	5	Skin-Effect Heating	2008
Russian Oil Company Cross-Country Crude Oil Pipeline	Russia	Crude Oil	12 & 16	20,000	25	Skin-Effect Heating with Well Clusters	2008
Middle East Common Sulphur Pipeline	Qatar	Sulphur	12	34,500	135	Skin-Effect Heating with Pre-Insulated Pipe & Fiber Optic DTS	2008

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Dutch Multinational Refinery Scotford Upgrader Facility	Canada	ARP Blending, ARB & RHC Stabilizer Bottoms	16	757	35	Skin-Effect Heating	2008
Beijing Airport Express Railway	China	Running Surface / Snow Melting Freeze Protection	Embedded	4,800	5	Concrete Embedded Skin-Effect Heating	2007
Adriatic LNG	Italy	LNG Tank - Embedded Concrete Wall	Embedded	51,860	5	Concrete Embedded Skin-Effect Heating & Fiber Optic DTS	2007
Russkoye Oil Field (S&P)	Russia	Water	6	5,630	10	Skin-Effect Heating	2007
Pančevo Oil Refinery	Serbia	Benzene	6	2,690	15	Skin-Effect Heating	2007
Saudi Petrochemical Company Sulphur Pipeline	Saudi Arabia	Sulphur	4	5,000	135	Skin-Effect Heating	2007
Dutch Manufacturing & Service Providing Company Refinery	Holland	Caustic Soda	4	1,200	25	Skin-Effect Heating	2007
HFO Terminal	Spain	Fuel Oil	3	2,100	50	Skin-Effect Heating with Buried & Pre-Insulated Pipe	2006
Pripolyarnaya Facility	Russia	Water	4	3,756	5	Skin-Effect Heating	2006
Burgas Refinery	Bulgaria	Caustic Soda	4	3,540	15	Skin-Effect Heating	2006
Russian Oil Company BRP Varandey Pipeline	Russia	Crude Oil	20	163,000	40	Skin-Effect Heating with Pre-Insulated Pipe	2006
NPA Jetty Terminal	China	Paraxylene HAC Fluid DN300	10	5,000	25	Skin-Effect Heating	2006
Dutch Multinational Refinery Mobile, AL	USA	Bitumen	10	1,518	60	Skin-Effect Heating	2006
Synthetic Crude Oil Energy Facility	Canada	NHA Vapor, LP Condensate, Naphtha, Gas Oil, Process, Sour Water	10	12,420	5–45	Skin-Effect Heating	2006
Crude Oil Distillation Plant	Russia	Heavy Gas, Vacuum Gas Oil (VGO)	6 & 10	8,123	45–55	Skin-Effect Heating	2006
Tatneft Pipeline	Russia	Heavy Gas, Vacuum Gas Oil (VGO), Crude Oil	6 & 10	8,520	45–55	Skin-Effect Heating	2005
HFO Ibiza Pipeline	Spain	Fuel Oil	16	4,000	50	Skin-Effect Heating with Buried & Pre-Insulated Pipe	2005
North American Natural Gas Producer Pipeline	Estonia	Caustic Soda	4	3,540	15	Skin-Effect Heating	2005
Energy Equipment Specialist Diesel Pipeline	Russia	Diesel	21	2,850	5	Skin-Effect Heating	2005
Petroleum Facility Sulphur Pipeline	Sweden	Sulphur	4	1,565	135	Skin-Effect Heating with Pre-Insulated Pipe	2005
Tangjeang Electronics Facility	Korea	NH3	3	400	33	Skin-Effect Heating	2005
Dutch Multinational Refinery Norco, LA	USA	Treated Gas Oil	10	2,538	54	Skin-Effect Heating	2005
Dutch Multinational Puget Sound Facility	USA	Fluid Catalytic Cracking	12	641	38	Skin-Effect Heating	2005
Silamae Oil Terminal	Estonia	Crude Oil	24	2,850	60	Skin-Effect Heating	2005
Canadian Energy Company Facility	Canada	Stripped Sour Water	12	723	10	Skin-Effect Heating	2005
Shell Puerto Rico Facility	Puerto Rico	Asphalt	12	571	266	Skin-Effect Heating	2004
Port of Tallinn Terminal	Estonia	Crude Oil	36	7,500	60	Skin-Effect Heating	2004
Liquid Asphalt & Emulsion Company Puerto Rico Plant	Puerto Rico	Asphalt	6 & 12	947	132	Skin-Effect Heating	2004
American Multinational Chemical Corporation Facility	USA	TTU	6	1,211	82	Skin-Effect Heating	2004
Wind Energy Operator - Gofiner Unit	Italy	Crude Oil	12	9,200	57	Skin-Effect Heating	2004
Tangjeang Electronics Facility T7	Korea	NH3	3	570	33	Skin-Effect Heating	2004
Canadian Energy Company Facility	Canada	Diluted Bitumen	20	1,794	38	Skin-Effect Heating	2004
Canadian Energy Company Facility	Canada	Diluted Bitumen, Sulphur	4 & 20	1,639	38–135	Skin-Effect Heating	2004

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French Multinational Corporation Donges Facility	France	Sulphur	4	1,041	140	Skin-Effect Heating	2004
American Energy Company Phase I	USA	Caustic Soda	8	287	32	Skin-Effect Heating with Barge Load Line	2004
Alumina Refinery Facility	Brazil	Lube Oil	14	2,362	60	Skin-Effect Heating	2003
American Natural Resources Company Acid Line	USA	Fresh & Spent Acid	6	4,724	21	Skin-Effect Heating	2003
Tobruk Facility	Libya	Fuel Oil	14	2,640	71	Skin-Effect Heating	2003
Dutch Multinational Puget Sound Facility	USA	Low Sulphur Gas	3 & 8	2,243	10	Skin-Effect Heating	2003
Canadian Energy Company Facility	Canada	Vacuum Gas Oil (VGO)	12	1,170	38	Skin-Effect Heating	2003
Canadian Energy Company Facility	Canada	Kero	6	1,093	10	Skin-Effect Heating	2003
American Energy Company Phase II	USA	Caustic Soda	8	2,178	32	Skin-Effect Heating with Barge Load Line	2003
UAE National Oil Company HFO Pipeline	UAE	Fuel Oil	12	4,480	60	Skin-Effect Heating	2002
Dutch Multinational Akzo Facility	Holland	Caustic Soda	4	3,233	40	Skin-Effect Heating	2002
German Chemical Company Yeosu Project	Korea	Chlorine	14	2,520	40–50	Skin-Effect Heating	2002
American Petroleum Exploration & Production Company Refinery	USA	Asphalt, Carbon Oil	8 & 12	1,289	149	Skin-Effect Heating	2002
Dutch Multinational Deer Park, TX Facility	USA	Phenol	4	2,030	57	Skin-Effect Heating	2002
Dutch Multinational Refinery Scotford Upgrader Facility	Canada	Boiler Gas, Sulphur, Crude Oil, Bitumen, Benzene, Water	3–18	21,157	10–135	Skin-Effect Heating	2002
Canadian Energy Company Millenium Facility	Canada	Fuel Gas, Oil, Bitumen, Water, Coker, Condensate, Sulphur	4–24	18,780	10–141	Skin-Effect Heating	2002
French Multinational Corporation / ILF Kharyaga Pipeline	Russia	Crude Oil	8	7,300	45	Skin-Effect Heating	2002
Korean & American Multinational Chemical Corporations Polycarbonate Facility	Korea	Caustic Soda, Chlorine	4–6	5,850	40–50	Skin-Effect Heating with Stainless Steel Carrier Pipe	2001
Dutch Multinational Refinery MRC Facility	Canada	Hot Water, VRU Off-Gas	3–14	4,908	5	Skin-Effect Heating	2001
International Industrial Services Provider Facility	Holland	Butanediol Methyl Propanediol	4	7,930	50	Skin-Effect Heating	2001
Burgas Refinery	Bulgaria	Crude Oil	6	3,080	65	Skin-Effect Heating	2000
American Chemical Manufacturing Company Pipeline	Denmark	Light Hydrocarbon	4	4,600	25	Skin-Effect Heating with Pre-Insulated Pipe	2000
American Multinational Energy Corporation Sulphur Transfer Line	USA	Sulphur	6	1,116	141	Skin-Effect Heating	2000
Building Material Producer Pipeline	USA	Phenol	8	2,000	61	Skin-Effect Heating	2000
German Chemical Company Pyrroles Plant	USA	Wastewater	2 & 3	2,835	40–65	Skin-Effect Heating	1999
German Chemical & Pharmaceutical Company Infrastructure Phase II Transfer Lines	USA	Caustic Soda	4 & 6	3,417	32	Skin-Effect Heating	1999
American Multinational Energy Corporation Sulphur Transfer Line	Canada	Sulphur	8	3,658	141	Skin-Effect Heating	1999
Asphalt & Oil Pipelines (PDM)	Chile	Asphalt, Crude Oil, Fuel Oil	6–18	11,376	71–149	Skin-Effect Heating	1999
Dutch Multinational Refinery	Holland	Benzene	6	6,880	20	Skin-Effect Heating	1999
American Petroleum Exploration & Production Company Refinery	USA	Asphalt	6	1,670	149	Skin-Effect Heating with Buried Pipe	1999
Dutch Multinational Geismar, LA Facility	USA	Hydrocarbon	8	2,670	52	Skin-Effect Heating	1999
Independent Petroleum Refiner Pipeline	USA	Residual Fuel	4	2,000	85	Skin-Effect Heating	1998

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American Multinational Energy Corporation Sulphur Transfer Line	Canada	Sulphur	12	976	141	Skin-Effect Heating	1998
American Natural Resources Company Asphalt Testing Lines	USA	Caustic Soda	3	830	33	Skin-Effect Heating	1998
American Multinational Refinery	USA	Wastewater	12	1,700	5	Skin-Effect Heating	1998
Yanbu Sulphur Refinery 2	Saudi Arabia	Crude Reduction, Fuel Oil	3–10	22,000	55–65	Skin-Effect Heating	1998
Aktau Fields	Kazakhstan	Crude Oil	6	20,000	50	Skin-Effect Heating	1998
Newfoundland Transshipment	Canada	Crude Oil	8	1,250	45	Skin-Effect Heating with Pre-Insulated Pipe	1998
Ras-Tanura Refinery Upgrade	Saudi Arabia	Sulphur	4	12,100	141	Skin-Effect Heating	1998
Independent Petroleum Refiner Pipeline	USA	Pyrolysis Fuel Oil	8–12	3,300	85	Skin-Effect Heating	1997
Bahama Sulphur Transfer Line	Bahamas	Sulphur	10	1,372	141	Skin-Effect Heating	1997
Nylon Refinery DongYang, Korea	Korea	Paraxylene	6	6,500	25	Skin-Effect Heating	1997
American Multinational Oil & Gas Corporation Paraxylene Project	USA	Paraxylene	12	2,670	46	Skin-Effect Heating	1997
American Natural Resources Company Project III	USA	Caustic Soda	6	760	33	Skin-Effect Heating	1997
Būtingė Oil Terminal	Lithuania	Oil	24	2,300	46	Skin-Effect Heating	1997
Indian State-Owned Oil & Natural Gas Company Refinery	India	Heavy Crude Oil	12	6,300	25	Skin-Effect Heating	1997
Aktau Fields	Kazakhstan	Crude Oil	8	6,892	60	Skin-Effect Heating	1997
Upgrading Facility	Korea	Paraxylene	6	2,100	25	Skin-Effect Heating	1997
American Multinational Energy Corporation Sulphur Transfer Line	USA	Sulphur	16	1,000	141	Skin-Effect Heating	1996
Venezuelan-Owned American Refinery Sulphur Transfer Line	USA	Sulphur	8	1,504	141	Skin-Effect Heating with Pre-Insulated Pipe	1996
Canadian Metals & Mining Company Sulphur Transfer Line	Canada	Sulphur	3	352	141	Skin-Effect Heating	1996
Independent Commodity Merchant Company Refinery	USA	Cracker Feed	6 & 12	6,660	80	Skin-Effect Heating	1996
American Agricultural Chemical Manufacturer Hannibal, MO Plant	USA	Wastewater	3	4,700	33	Skin-Effect Heating	1995
North American Natural Gas Producer ET Oil Pipeline #6	Estonia	Fuel Oil	20	7,383	60	Skin-Effect Heating	1995
American Multinational Chemical Corporation Facility Freeport, TX	USA	Feed Line	8	8,700	70	Skin-Effect Heating	1995
American Multinational Energy Corporation Sulphur Transfer Line	USA	Sulphur	3 & 6	12,805	135	Skin-Effect Heating	1994
American Multinational Energy Corporation HFO Line	USA	Fuel Oil	4	1,330	85	Skin-Effect Heating	1994
American Multinational Chemical Corporation Facility Plaquemine, LA	USA	DEA	8	3,400	42	Skin-Effect Heating	1994
Kingsport, TN Wastewater Project	USA	Wastewater	10	5,000	10	Skin-Effect Heating	1994
American Multinational Oil & Gas Corporation Paraxylene Project	USA	Paraxylene	4–10	4,000	46	Skin-Effect Heating	1994
American Oil Company Borger, TX Project	USA	Acid Gas	10	400	58	Skin-Effect Heating	1994
American Multinational Energy Corporation Heavy Wax Line	USA	Heavy Wax	8	1,500	118	Skin-Effect Heating	1993
North American Natural Gas Producer Pipeline	Estonia	Oil	20	8,370	66	Skin-Effect Heating	1993
American Multinational Energy Corporation Sulphur Transfer Line	USA	Sulphur	6	33,315	141	Skin-Effect Heating	1993
Tank Terminal Company Pasadena, TX	USA	Phenol	8	700	60	Skin-Effect Heating	1993
Asphalt Testing Technologies Company Asphalt Lines	USA	Asphalt	8	830	141	Skin-Effect Heating	1993
American Multinational Energy Corporation Westlake, LA Pipeline	USA	Heavy Coker Gas Oil	6	2,350	90	Skin-Effect Heating	1992
German Chemical Company	USA	Hydrocarbon	12	3,300	46	Skin-Effect Heating	1991

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Specialty Chemical Manufacturer Deer Park, TX	USA	Acrylic	4	7,000	46	Skin-Effect Heating	1991
Independent Petroleum Refiner Pipeline	USA	Hydrocarbon	4	2,670	70	Skin-Effect Heating	1990
Trans-Alaska Pipeline Company - Station 12	USA	Water	3–4	540	5	Skin-Effect Heating	1989
Independent Petroleum Refiner Pipeline	USA	Water	3–12	600	5	Skin-Effect Heating	1989
American Petroleum Exploration & Production Company Refinery	USA	Asphalt	12–30	1,100	122	Skin-Effect Heating	1989
Pharmaceutical Manufacturing Firm	USA	Isocyanate	4	690	51	Skin-Effect Heating	1989
Trans-Alaska Pipeline Company - Station 10	USA	Water	3–4	823	5	Skin-Effect Heating	1988
American Multinational Chemical Corporation Facility	USA	Cyclohexanol	4	1,100	6	Skin-Effect Heating	1988
Trans-Alaska Pipeline Company - Station 2	USA	Water	2–4	732	5	Skin-Effect Heating	1988
American Conglomerate Refinery	USA	Chlorine	10	860	10	Skin-Effect Heating	1988
Cognitive Solutions & Cloud Platform Company	USA	Water	16	129	5	Skin-Effect Heating	1988
National Power Company	USA	Fuel Oil	20	600	61	Skin-Effect Heating	1988
American Multinational Chemical Corporation Facility	USA	Caustic Soda	2–6	1,830	40	Skin-Effect Heating	1987
Tank Terminals Company Crude Oil Line	USA	Crude Oil	20	1,080	51	Skin-Effect Heating	1987
Specialty Chemical Manufacturer Surface Heat Line	USA	Surface Heat	2	250	5	Skin-Effect Heating	1987
Global Specialty Chemicals Company Refinery	USA	Synthetic	2	152	235	Skin-Effect Heating	1986
American Multinational Chemical Corporation Facility	USA	Acetic Acid	4	2,680	37	Skin-Effect Heating	1986
American Chemical Manufacturing Company	USA	Water	6	330	5	Skin-Effect Heating	1986
American Multinational Oil & Gas Corporation Refinery	USA	Water	3	100	5	Skin-Effect Heating	1986
American Pulp & Paper Company	USA	Fuel Oil	8	670	70	Skin-Effect Heating	1986
Independent Energy Company HFO Pipeline	USA	Fuel Oil	24	366	60	Skin-Effect Heating	1985
Independent Petroleum Refiner Pipeline	USA	Water	1–24	1,500	5	Skin-Effect Heating	1985
British Multinational Pipeline	Canada	Bitumen	3	1,026	54	Skin-Effect Heating	1985
Power Company Kansas City, KS	USA	Caustic Soda	4	690	33	Skin-Effect Heating	1985
American Global Cigarette & Tobacco Company	USA	Glycerin	4	200	49	Skin-Effect Heating	1985
Leading Additive Producer	USA	Acetic Acid	4	1,400	37	Skin-Effect Heating	1985
British Multinational Refinery	USA	Asphalt	16	260	141	Skin-Effect Heating	1984
Global Specialty Chemicals Company Refinery	USA	Synthetic	2	145	235	Skin-Effect Heating	1984
American Multinational Chemical Corporation Facility	Canada	Ethylene	2–8	4,400	27	Skin-Effect Heating	1984
Canadian Petroleum Company	Canada	Fuel Oil	3	2,170	10	Skin-Effect Heating	1984
Naval Shipyard Portsmouth, NH	USA	Water	6	258	5	Skin-Effect Heating	1984
Stapleton Airport Denver, CO	USA	Water	2–6	1,050	5	Skin-Effect Heating	1984
British Multinational Tidewater HFO Line	USA	Heavy Oil	24	595	68	Skin-Effect Heating	1983
American Multinational Energy Corporation Sulphur Transfer Line	USA	Sulphur	4	2,439	141	Skin-Effect Heating	1983
American Multinational Oil & Gas Corporation Refinery	USA	Water	2	300	5	Skin-Effect Heating	1983
Trans-Alaska Pipeline Company - Station 7	USA	Water	3 & 4	415	5	Skin-Effect Heating	1982
British Multinational Refinery	USA	Oil	20 & 24	4,600	63	Skin-Effect Heating	1982

Project Name	Location	Service	Pipeline Diameter (in)	Pipeline Length (m)	Maintain Temp (°C)	Bundled Technology	Year
Independent Petroleum Refiner Pipeline	USA	Water	10	812	5	Skin-Effect Heating	1982
Independent Petroleum Refiner Pipeline	USA	Fuel Oil	1–10	557	5	Skin-Effect Heating	1982
French Multinational Corporation HFO Line	USA	Fuel Oil	4	550	50	Skin-Effect Heating	1982
Biofuels Supply & Trading Company Terminal	USA	Fuel Oil	24	855	56	Skin-Effect Heating	1982
American Multinational Chemical Corporation Facility	Canada	Ethylene	2–8	4,400	27	Skin-Effect Heating	1982
American Multinational Chemical Corporation Facility	USA	Solvent	3	610	58	Skin-Effect Heating	1982
American Multinational Chemical Corporation Facility	USA	Paraxylene	6	330	35	Skin-Effect Heating	1982
Canadian Petroleum Company	Canada	Fuel Oil	3	850	10	Skin-Effect Heating	1982
American Multinational Conglomerate	USA	Light Oil	3	935	61	Skin-Effect Heating	1982
Trans-Alaska Pipeline Company - Station 5	USA	Water	3 & 4	400	5	Skin-Effect Heating	1981
American Multinational Chemical Corporation Facility	USA	MEA Brake Fluid	8	2,900	47	Skin-Effect Heating	1981
American Multinational Chemical Corporation Facility	USA	Caustic Soda	3 & 8	380	32	Skin-Effect Heating	1981
American Multinational Oil & Gas Corporation Refinery	USA	Low Sulphur Fuel	12	700	70	Skin-Effect Heating	1981
Roofing Asphalt Company	USA	Asphalt	12	1,200	141	Skin-Effect Heating	1981
Trans-Alaska Pipeline Company - Stations 3 & 4	USA	Water	3 & 4	990	5	Skin-Effect Heating	1980
Trans-Alaska Pipeline Company - Station 1	USA	Water	3 & 4	1,500	5	Skin-Effect Heating	1980
American Multinational Chemical Corporation Facility	USA	Benzene	3 & 6	700	38	Skin-Effect Heating	1980
American Chemicals Company Phenol Line	USA	Phenol	6	3,170	61	Skin-Effect Heating	1980

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