

Construction Projects: Bottoms Upgrading

Please note that the project statistics here do not include any units under negotiation, in captive markets, or not yet disclosed to the public by licensors or host refiners for confidential reasons. Hydrocarbon Publishing engages in an intensive search for correct and accurate information, but the lack of company notice or publication regarding the conclusion of construction projects results in the assumption of some completion dates. Also, due to sometimes conflicting and/or incomplete information from different sources, it is possible that some of the projects listed are duplicates. The total additional capacity listings are merely estimates since some companies report only the added capacity while others list the total after new capacity has been established. Much of the information is derived from project lists published regularly by *Hydrocarbon Processing*, *Oil & Gas Journal*, as well as articles from *Worldwide Refinery Business Digest Weekly*.

Coking

Updated 3Q 2010.

Company	Location	Status (capacity note) ^a	Licensor—engineer— constructor (other contractor)	Est. cost, \$MM	Additional capacity, K b/d ^a			
					2010	2011	2012	2013 & beyond
United States								
BP	Whiting, IN	E (New)	N.A.—Fluor—N.A. (Fluor)	3K		102		
		E (New, coker pillar)	N.A.—Foster Wheeler— FW			N.A.		
		E (New, flow meters)	N.A.—GE Sensing & Inspection Technologies— GE S&I Tech	1.1		N.A.		
Coffeyville Resources	Coffeyville, KS	U (Re, delayed)	N.A.—ENGlobal— AltairStrickland					N.A. (N.A.)
ConocoPhillips	Los Angeles, CA	N.A. (Up)	N.A.		N.A.			
	Rodeo, CA	E (New, delayed)	N.A.—Mustang—Mustang (D-Cok)					N.A. (N.A.)
	Wood River, IL	P (New)	N.A.					N.A. (¹³)
	Ferndale, WA	N.A. (Up)	N.A.	350			25	
ConocoPhillips/ Encana	Wood River, IL	U (Ex)	N.A.	4K ^b		65		
ExxonMobil	Beaumont, TX	C (Re, delayed)	N.A.—N.A.— AltairStrickland	13				N.A. (N.A.)
Flint Hills Resources	Rosemount, MN	E (Ex, delayed)	N.A.—Foster Wheeler— N.A.					N.A. (N.A.)
Kern Oil & Refining	Bakersfield, CA	N.A. (New)	N.A. (Foster Wheeler)					N.A. (N.A.)
LyondellBasell	Houston, TX	P (Delayed)	N.A.—N.A.— AltairStrickland	12				N.A. (¹³)

Company	Location	Status (capacity note) ^a	Licensor—engineer— constructor (other contractor)	Est. cost, \$MM	Additional capacity, K b/d ^a			
					2010	2011	2012	2013 & beyond
Marathon Oil (formerly Marathon Ashland Petroleum)	Garyville, LA	C (New, delayed)	Fluor—Fluor—Fluor (Fluor/Stone & Webster/Flowserve/Pinnac eAIS)		40 (Jan.)			
	Detroit, MI	P (Ex)	Fluor—Fluor—Fluor	1900			28 (Late)	
Motiva Enterprises	Port Arthur, TX	E (New, delayed)	ConocoPhillips— Jacobs/Bechtel— Jacobs/Bechtel				95	
Sinclair Oil	Tulsa, OK	E (New, delayed)	Foster Wheeler—FW—FW			30		
United Refining	Warren, PA	E (Delayed)	Lummus Technology— CB&I—N.A.		14			
Valero Energy	St. Charles (Norco), LA	P (By)	Technip—Fluor—N.A.		10			
	Port Arthur, TX	C (New)	N.A. (Shell Global Solutions/Criterion Catalysts & Technologies)	1300	50 (Aug.)			
		P (New)	N.A. (Shell Global Solutions/Criterion Catalysts & Technologies)	1300		45 (2Q)		
Western Refining	Yorktown, VA	P (Ex, delayed)	N.A.	10		N.A. (H1)		
WRB Refining	Roxania, IL	U (Ex)	N.A.—N.A.—Fluor					N.A. (N.A.)
REGIONAL TOTAL NUMBER OF PROJECTS = 23					114	142	158	N.A.
Canada								
Fort Hills Energy	Fort Hills, AB	F (Delayed)	N.A.—Technip—Technip			N.A.		
Petro-Canada	Montréal, QB	E (New, delayed)	N.A.—Bantrel—N.A.	1K			25 (Dec)	
Suncor Energy	Fort McMurray, AB	E (New, delayed)	ConocoPhillips—CB&I— CB&I		275			
Total E&P	Edmonton, AB	F	N.A.					N.A. (15)
REGIONAL TOTAL NUMBER OF PROJECTS = 4					275	N.A.	25	N.A.
Latin America and the Caribbean								
Repsol YPF	La Plata, Argentina	E (By)	Foster Wheeler—FW— N.A.					28 (N.A.)
Petrobras	Comperj, Rio de Janeiro, Brazil	N.A. (New)	N.A.—N.A.— Techint/Andrade Guterrez					N.A. (N.A.)
Petrobras/PDVSA	Abreu e Lima, Brazil	N.A. (New, delayed)	N.A.	1.99K			N.A. (Nov.)	
Petropower	Talcahuano, Chile	E (Ex,	Foster Wheeler—FW—					N.A.

Company	Location	Status (capacity note) ^a	Licensor—engineer— constructor (other contractor)	Est. cost, \$MM	Additional capacity, K b/d ^a			
					2010	2011	2012	2013 & beyond
		delayed)	N.A.					(N.A.)
Ecopetrol	Barrancabermeja, Colombia	E (Delayed)	N.A.—Foster Wheeler— N.A.					54 ('13)
Petrojam	Kingston, Jamaica	F (Delayed)	Lummus Tech—N.A.— N.A.					15 ('13)
Pemex	Minatitlán, Mexico	U (Delayed)	Foster Wheeler— Tecnicas—Tecnicas			7.4 (March)		
	Salina Cruz, Oax., Mexico	P (New, delayed)	Foster Wheeler—FW— N.A.		N.A.			
PetroPeru	Talara, Piura, Peru	P (New)	N.A.		25 (Jan.)			
		P (New, fluid coking)	N.A.—Haldor Topsøe, Axens—N.A.	1K ^b			20 (Jan.)	
REGIONAL TOTAL NUMBER OF PROJECTS = 10					25	7.4	20	97
Western Europe								
Hellenic Petroleum	Elefsis, Greece	P (Up, Flexicoker)	EMRE—N.A.—N.A.	1.2K ^b		21		
Statoil	Mongstad, Norway	U (Up; automated unheading)	N.A.—M.W. Kellogg—N.A.				N.A. (2Q)	
		U (Re)	N.A.—M.W. Kellogg—N.A.				N.A. (2Q)	
Petroleos del Norte (Petronor)	Muskiz, Spain	E (2.1K mt/d)	Foster Wheeler—FW— N.A.			140.7 (Dec.)		
	Somorrostro, Spain	E (Delayed)	Foster Wheeler— Sener/FW—N.A.		36			
Repsol YPF	Bilbao, Spain	P	N.A.					N.A. (‘13)
	Tarragona, Spain	P	N.A.					N.A. (‘13)
	Vizcaya, Spain	E (New)	Foster Wheeler—FW—FW			40		
	Cartagena, Murcia, Spain	U (New)	Foster Wheeler—FW—FW (Foster Wheeler Iberia)			53		
		U	N.A. (Foster Wheeler Iberia)					60
Lysekil refinery	Lysekil, Sweden	F (New; 7.7K mt/d)	FW—Technip—N.A.	1K			51.6	
REGIONAL TOTAL NUMBER OF PROJECTS = 11					36	254.7	111.6	N.A.
CIS and Central/Eastern Europe								
JSC Naftan	Novopolotsk, Belarus	E (New, delayed)	Foster Wheeler—FW— N.A.					20 (N.A.)

Company	Location	Status (capacity note) ^a	Licensor—engineer— constructor (other contractor)	Est. cost, \$MM	Additional capacity, K b/d ^a			
					2010	2011	2012	2013 & beyond
MOL	Szazhalombatta, Hungary	P (Re; 300K t/y)	N.A.	420	5.008			
Petrom	Ploiesti, Romania	E (Re)	N.A.—Foster Wheeler— FW					N.A. (N.A.)
ConocoPhillips/Ro mopetrol Rafinare	Navordi, Romania	E (Re, delayed)	N.A.—Rominservice— Rominservice	50			22	
CJSC Nizhnekamsk	Tatarstan, Russia	E (New)	N.A.—Foster Wheeler— FW			N.A.		
LUKoil	Volgograd, Volgograd Oblast, Russia	P (Re, delayed)	N.A.		N.A.			
NizhnekamskNeftek him	Nizhnekamsk, Tatarstan, Russia	F (Delayed)	Foster Wheeler—FW— FW		N.A.			
Kherson Oil Refinery	Kherson, Ukraine	E (Delayed)	Lummus Technology— N.A.—N.A.			11		
REGIONAL TOTAL NUMBER OF PROJECTS = 8					5	11	22	20
The Middle East								
Middle East Oil Refinery	Alexandria, Egypt	E (Ex, delayed)	N.A.—Technip—N.A.	55	30 (3Q)			
KNPC	Mina Al Ahmadi, Kuwait	E (Delayed)	Lummus Technology— N.A.—N.A.			37.2		
Saudi Aramco Total Refining & Petrochemical Co.	Jubail, Saudi Arabia	E (New, delayed)	UOP/FW— Chiyoda/Samsung Eng— Chiyoda/SE	900				100 (June '13)
Saudi Aramco/ConocoPhil lips	Yanbu, Saudi Arabia	P (New)	N.A.—N.A.—Tecnicas Reunidas					N.A. (N.A.)
Petkim/SOCAR/Tur cas	Aliaga, Turkey	F (Delayed)	FW—N.A.—N.A.					40 ('14)
REGIONAL TOTAL NUMBER OF PROJECTS = 5					30	37.2	0	140
Africa								
Sonatrach	Skikda, Algeria	E	Axens/GTC—Samsung Eng—Samsung Eng				30	
Egyptian Refining Co.	N.A., Egypt	P (New)	N.A.					N.A. (N.A.)
Middle East Oil Refinery	Midor, Alexandria, Egypt	U (Ex)	N.A.—Technip—Technip		To 30 (3Q)			
REGIONAL TOTAL NUMBER OF PROJECTS = 3					30	0	30	N.A.
Asia-Pacific								
Liaoning Huajin Chemicals	Panjin, China	E (1.2MM t/y)	LPEC—LPEC—Liaoning Huajin Chem		20			

Company	Location	Status (capacity note) ^a	Licensor—engineer— constructor (other contractor)	Est. cost, \$MM	Additional capacity, K b/d ^a			
					2010	2011	2012	2013 & beyond
PetroChina	Fushun, Jilin, China	C (New)	N.A.	148	43 (Oct.)			
Sinochem	Quanzhou, China	N.A. (New)	N.A.				25.7	
Sinopec	Luoyang, China	N.A. (New)	N.A.					27.5 (N.A.)
	Tahe, China	C (Ex)	N.A.		N.A. (July)			
	Wuhan, China	N.A. (New)	N.A.					37 (N.A.)
	Xinjiang, China	N.A. (Ex)	N.A.		44 (Oct.)			
Bharat Oman Refineries	Bina, Madhya Pradesh, India	E (Delayed)	Lummus Technology— N.A.—N.A.			25		
Chennai Petroleum	Manali, India	N.A. (Delayed)	N.A.—Jacobs Engineering—Jacobs Engr.	650				N.A. (N.A.)
Essar Oil	Vadinar, Gujarat, India	U (Delayed; <i>6MM t/y</i>)	Lummus Technology— CB&I/Aker Kvaerner Powergas—Essar Proj			100.2 (H1)		
Hindustan Petroleum/Mittal Energy	Bhatinda, Punjab, India	U (New)	N.A.—L&T—L&T			N.A. (H1)		
Indian Oil	Guwahati, Assam, India	E (New, delayed)	N.A.—Jacobs Engineering—Jacobs Engr.	60				N.A. (N.A.)
	Barauni, Bihar, India	N.A. (New)	N.A.		N.A. (By)			
	Paradip, Orissa, India	U (New, delayed; <i>4.7 MM t/y</i>)	Indian Oil—FW—Jacobs Engineering	350			68.4	
	Haldia, West Bengal, India	U (New)	N.A.		50+			
Cosmo Oil	Sakai, Japan	C (New)	N.A.		25 (Feb.)			
Pakistan Refinery Ltd.	Karachi, Pakistan	P (Delayed)	N.A.	1500	N.A.			
Formosa Petrochemical	Mailiao, Taiwan	P (New, delayed)	N.A.	402			N.A. (End)	
REGIONAL TOTAL NUMBER OF PROJECTS = 18					183	125.2	94.1	64.5
WORLDWIDE TOTAL NUMBER OF PROJECTS = 82					698	577.5	460.7	321.5
WORLDWIDE TOTAL NEW CAPACITY					2,035.7			
^a Capacity is given in thousands of b/d; if capacity was given in other terms, it has been converted to K b/d for the Additional capacity columns, but given in the original denomination as a capacity note in italics. Conversions were based on the assumption that 7.5 bbl is equivalent to 1 mt of gas oil or diesel output. ^b Cost includes other projects. C: completed. E: engineering. P: planning. U: under construction. By: amount of capacity increase. Ex: expansion. Re: revamp. To: total capacity after project completion. Up: upgrade.								

Resid Fluidized Catalytic Cracking

Updated 4Q 2009.

Company	Location	Status (capacity note)	Licensor—engineer— constructor (other contractor)	Est. cost, \$MM ^b	Additional capacity, K b/d ^a			
					2009	2010	2011	2012 & beyond
Latin America and the Caribbean								
Petrobras	Rio de Janeiro, Brazil	P (Resid; 280K t/y)	Shaw—Shaw—N.A.					5.9 (N.A.)
Petrobras	São Paulo, Brazil	E (Resid)	KBR/ExxonMobil—N.A.— N.A.					N.A. (N.A.)
REGIONAL TOTAL NUMBER OF PROJECTS = 2								5.9
The Middle East								
Qatar Petroleum	Al Shaheen, Qatar	F (New, resid)	Axens—Shaw E&C—N.A.					60 ('12)
Abu Dhabi Refining (Takreer)	Ruwais, Abu Dhabi, UAE	E (Ex, resid)	N.A.—GS Engineering & Construction—GS E&C	3.1K				N.A. (‘13)
Abu Dhabi Refining (Takreer)	Ruwais, Abu Dhabi, UAE	N.A. (New, resid)	N.A.					46.7 (‘14)
REGIONAL TOTAL NUMBER OF PROJECTS = 3								106.7
Asia-Pacific								
Yanchang Petroleum Group	Shaanxi, China	F (By; DCC)	Shaw—SEIC—N.A.					13.7 (‘13)
Chennai Petroleum	N.A., India	P (New resid)	N.A.			N.A.		
Hindustan Petroleum/Mittal Energy Investments	Bhatinda, India	U (New; DCC)	N.A.—L&T—L&T (Shaw Group)			N.A.		
Pertamina	Balongan, Indonesia	N.A. (Up, resid)	N.A. (Itochu/Toyo Engr./Rekayasa Industri)			N.A. (Mid)		
Taiyo Oil	Shikoku, Japan	P (New, resid)	N.A.	426.5 (¥50B)				25 ('14)
Shell Eastern Petroleum	Pulau Bukom, Singapore	E (Re, resid)	N.A.—Chiyoda Singapore— Chiyoda Singapore					N.A. (N.A.)
Hyundai OilBank	Sosan, South Korea	P (Resid)	N.A.	2K ^b		60		
S-Oil	Onsan, South Korea	P (New, resid)	N.A.	3.74K ^b		75		
Nghi Son Refinery	Thanh Hoa, Vietnam	E (Resid)	Axens—N.A.—N.A.					N.A. (‘13)
PetroVietnam	Dung Quat, Quang Ngai, Vietnam	U (New, resid)	Axens/IFP— Technip/JGC/Tecnicas— Technip/Tecnicas/JGC		69.7			
REGIONAL TOTAL NUMBER OF PROJECTS = 10					69.7	135		38.7
WORLDWIDE TOTAL NUMBER OF PROJECTS = 15					69.7	135		151.3
WORLDWIDE TOTAL NEW CAPACITY					356			

Company	Location	Status (capacity note)	Licensor—engineer— constructor (other contractor)	Est. cost, \$MM ^b	Additional capacity, K b/d ^a			
					2009	2010	2011	2012 & beyond
^a Capacity is given in thousands of b/d; if capacity was given in other terms, it has been converted to K b/d for the Additional capacity columns, but given in the original denomination as a capacity note in italics. Conversions were based on the assumption that 8.5 bbl is equivalent to 1 mt of gasoline output. ^b Cost includes other projects. C: completed. E: engineering. P: planning. U: under construction. By: amount of capacity increase. Ex: expansion. Re: revamp. To: total capacity after project completion. Up: upgrade.								

Resid Hydrocracking

Updated 3Q 2010.

Company	Location	Status (capacity note) ^a	Licensor—engineer— constructor (other contractor)	Est. cost, \$MM	Additional capacity, K b/d ^a			
					2010	2011	2012	2013 & beyond
Canada								
North West Upgrading	Edmonton, Sturgeon County, AB	U (New, resid)	Chevron Lummus Global— CLG—KBR (UOP)		32			
		E (Resid, LC- FINING)	Chevron Lummus Global— CLG—N.A.		77			
Shell Canada	Scotford upgrader, Ft. Saskatchewan (near Edmonton), AB	U (Resid)	Chevron Lummus Global— Bechtel/Bantrel—PCL		10			
REGIONAL TOTAL NUMBER OF PROJECTS = 3					119			
CIS and Central/Eastern Europe								
LUKoil	Burgas, Bulgaria	E (New, resid)	Axens—Technip—N.A.				7	
INA Industrija Nafta	Sisak, Croatia	U (Resid)	Chevron Lummus Global— CLG—Lummus Technology					20 (13)
REGIONAL TOTAL NUMBER OF PROJECTS = 2							7	20
Asia-Pacific								
GS Caltex	Yeosu, South Korea	E (Resid)	Chevron Lummus Global— GS E&C—GS E&C			60		
	Yosu, South Korea	N.A. (Resid)	N.A.	22K	60 (June)			
REGIONAL TOTAL NUMBER OF PROJECTS = 2					60	60		
WORLDWIDE TOTAL NUMBER OF PROJECTS = 7					179	60	7	20
WORLDWIDE TOTAL NEW CAPACITY					266			
^a Capacity is given in thousands of b/d; if capacity was given in other terms, it has been converted to K b/d for the Additional capacity columns, but given in the original denomination as a capacity note in italics. Conversions were based on the assumption that 7.5 bbl is								

Company	Location	Status (capacity note) ^a	Licensor—engineer— constructor (other contractor)	Est. cost, \$MM	Additional capacity, K b/d ^a			
					2010	2011	2012	2013 & beyond
equivalent to 1 mt of gas oil or diesel output.								
C: completed. E: engineering. P: planning. U: under construction.								
By: amount of capacity increase. Ex: expansion. Re: revamp. To: total capacity after project completion. Up: upgrade.								

Resid Hydrotreating

Updated 2Q 2010.

Company	Location	Status (capacity note) ^a	Licensor—engineer— constructor (other contractor)	Est. cost, \$MM	Additional capacity, K b/d ^a			
					2009	2010	2011	2012 & beyond
United States								
BP	Toledo, OH	F (Resid)	KBR—KBR—N.A.					42 (N.A.)
REGIONAL TOTAL NUMBER OF PROJECTS = 1								42
The Middle East								
Esfahan Oil	Esfahan, Iran	E (Resid)	Axens—Namvaran/HEC— N.A.	74				80 ('12)
Kuwait National Petroleum	Mina Abdulla, Kuwait	P (Re, resid)	Chevron Lummus—N.A.— N.A.					150 (N.A.)
	Mina al Ahmadi, Kuwait	P (Re, resid)	Chevron LG—Chevron LG—N.A.			50		
Qatar Petroleum	Al-Shaheen, Qatar	F (Residue)	Axens—N.A.—N.A.					51 ('12)
REGIONAL TOTAL NUMBER OF PROJECTS = 4							50	281
Asia-Pacific								
PetroChina (CNPC)	Sichuan, China	U (Resid)	Chevron LG—Chevron LG—N.A.					48 ('13)
Sinochem	Quanzhou, China	U (Residue)	Chevron LG—Chevron LG—N.A.		48			
Sinopec	Anqing, China	P (New, Resid)	N.A.					40 (Sept. '12)
	Luoyang, China	N.A. (Residue)	N.A.					40.4 (N.A.)
	Qingdao, China	P (Residue; 2.6MM mt/y)	Chevron Lummus—N.A.— N.A.		53.5			
Hyundai Oil Refinery	Daesan, South Korea	U (New, resid)	Chevron LG—Chevron LG—N.A. (Shaw Group)	1.47K ^b			66 (June)	
	Sosan, South Korea	N.A. (New, residue)	N.A.			N.A.		
Nghi Son Refinery	Nghi Son, Vietnam	U (Resid)	Chevron LG—Chevron LG—N.A.					105 ('13)
REGIONAL TOTAL NUMBER OF PROJECTS = 8					53.5	48	66	233.4
WORLDWIDE TOTAL NUMBER OF PROJECTS = 13					53.5	48	116	556.4

Company	Location	Status (capacity note) ^a	Licensor—engineer—constructor (other contractor)	Est. cost, \$MM	Additional capacity, K b/d ^a			
					2009	2010	2011	2012 & beyond
WORLDWIDE TOTAL NEW CAPACITY					773.9			
^a Capacity is given in K b/d; if capacity was given in other terms, it has been converted to K b/d for the additional capacity columns, but given in the original denomination as a capacity note in italics. Conversions were based on the assumption that 1 mt of gasoline = 8.5 bbl, 1 mt ULSD/diesel/gas oil/VGO = 7.5 bbl, 1 mt light ends/LPG = 11.63 bbl, 1 mt kerosene = 7.8 bbl, and 1 mt resid/fuel oil = 6.7 bbl. ^b Cost includes other projects C: completed. E: engineering. P: planning. U: under construction. By: amount of capacity increase. Ex: expansion. Re: revamp. To: total capacity after project completion. Up: upgrade.								

Solvent Deasphalting

Updated 2Q 2010.

Company	Location	Status (capacity note) ^a	Licensor—engineer—constructor (other contractor)	Est. cost, \$MM	Additional capacity, K b/d ^a			
					2009	2010	2011	2012 & beyond
Western Europe								
Eni	Sannazzaro, Italy	P (New, ROSE)	KBR—N.A.—N.A.	670				15 (N.A.)
REGIONAL TOTAL NUMBER OF PROJECTS = 1					0	0	0	15
CIS and Central/Eastern Europe								
Grupa Lotos	Gdansk, Poland	U (New, ROSE)	KBR—N.A.—N.A.			45 (Nov.)		
Mariisky NPZ	Mari El, Russia	U (New)	Foster Wheeler—Shell Global Solutions International—N.A.					N.A. ('12)
Mariisky-NPZ	Yoshkar-Ola, Russia	F (New, propane)	N.A.—Vnpineft—N.A.					N.A. ('12)
REGIONAL TOTAL NUMBER OF PROJECTS = 3					0	45	0	N.A.
Asia-Pacific								
Hindustan Petroleum	Mumbai, India	U (New, propane)	KBR—KBR—KBR					N.A. (N.A.)
REGIONAL TOTAL NUMBER OF PROJECTS = 1					0	0	0	N.A.
WORLDWIDE TOTAL NUMBER OF PROJECTS = 5					0	45	0	15
WORLDWIDE TOTAL NEW CAPACITY					60			
^a Capacity is given in thousands of b/d; if capacity was given in other terms, it has been converted to K b/d for the Additional capacity columns, but given in the original denomination as a capacity note in italics. ^b Cost includes other projects. C: completed. E: engineering. P: planning. U: under construction. By: amount of capacity increase. Ex: expansion. Re: revamp. To: total capacity after project completion. Up: upgrade.								

Visbreaking

Updated 4Q 2010.

Company	Location	Status (capacity note) ^a	Licensor—engineer— constructor (other contractor)	Est. cost, \$MM	Additional capacity, K b/d ^a			
					2010	2011	2012	2013 & beyond
Latin America and the Caribbean								
Staatsolie	Paramaribo, Surinam	E (New)	Lummus Technology/Shell—CB&I Lummus/Aker Solutions/Saipem—Saipem	600 ^b				3 (^{'13})
REGIONAL TOTAL NUMBER OF PROJECTS = 1					0	0	0	3
Western Europe								
Galp Energia	Leca da Palmeira, Porto, Portugal	U (New)	N.A.—Lumus—Fluor		14.6 (Oct.)			
	Sines, Portugal	E (Re)	N.A.—Technicas Reunidas—Technicas Reunidas			N.A.		
Preemraff Lysekil	Lysekil, Sweden	F (To, <i>8K m/d</i>)	Shell—Technip—N.A.			53.6		
REGIONAL TOTAL NUMBER OF PROJECTS = 3					14.6	53.6	0	0
CIS and Central/Eastern Europe								
LUKoil	Kstovo, Nizhny Novgorod	(Up)	N.A.			N.A.		
REGIONAL TOTAL NUMBER OF PROJECTS = 1					0	N.A.	0	0
The Middle East								
Saudi Aramco	Ras Tanura, Saudi Arabia	F (two trains)					120	
REGIONAL TOTAL NUMBER OF PROJECTS = 1					0	0	120	0
WORLDWIDE TOTAL NUMBER OF PROJECTS = 6					14.6	53.6	120	3
WORLDWIDE TOTAL NEW CAPACITY					191.2			
^a Capacity is given in thousands of b/d; if capacity was given in other terms, it has been converted to K b/d for the Additional capacity columns, but given in the original denomination as a capacity note in italics. ^b Cost includes other projects. C: completed. E: engineering. P: planning. U: under construction. By: amount of capacity increase. Ex: expansion. Re: revamp. To: total capacity after project completion. Up: upgrade.								