

Report: Kazakhstan Upstream and Oil Field Market

400 pages and over 550 graphs and tables (please see Content and List of Figures). Data for the last 11 years (ending December 2018). All key data in graphs is numerical. Ready for delivery in English.

Kazakhstan OFS market provides opportunities to both low cost, basic oilfield service provider and a company on cutting edge of technologies available. Being relatively open to foreign companies and the capital market, the industry attracted the largest international companies such as CNPC, Chevron, ExxonMobil, ENI and BG.

The market went through a dramatic downturn as low crude oil prices and devaluation dominated operating environment of both oil & gas and OFS companies.

The Kazakhstan market is unique in its diversity of resource base (offshore and onshore, post-salt and pre-salt, very small and gigantic, including Kashagan - the largest global discovery in recent history). Development of complex pre-salt fields (very deep, high pressure and high hydrogen sulphide content) requires unique expertise from oilfield service and equipment suppliers.

This report examines historical production and operational data in detail (2007-2018) and provides a forecast till 2024 of Kazakhstan's hydrocarbons production and oilfield services by key producing regions.

CONTENT

1	Abstract	19
2	Kazakhstan Oil Industry Structure	20
2.1	Taxation of hydrocarbons production and export.....	22
2.2	Kazmunaigas (NC KMG and KMG EP).....	24
2.2.1	Kazmunaigas Exploration and Production (KMG EP).....	28
2.3	CNPC and other Chinese companies.....	38
3	Kazakhstan Hydrocarbon Resources	44
4	Crude, condensate and gas production in Kazakhstan	50
5	Kazakhstan Oilfield Services Market in 2007-2018	60
5.1	Market size estimates.....	64
5.2	Regional breakdown of Kazakhstan OFS Market and complex project share	68
5.3	Rig mobilization and rig-up.....	70
5.4	Drilling Segment.....	71
5.5	Drilling Fluids.....	74
5.6	Drill bits and bits program	74
5.7	Wireline (logging and perforation)	75
5.8	Turbines and their servicing.....	78
5.9	MWD/LWD and telemetry	78
5.10	Pressure Pumping (cementing, fracturing and coiled tubing).....	79
5.11	Casing costs.....	81
5.12	Completion	82
5.13	Well Servicing and Workover Segments.....	82
5.14	Seismic	83
6	Forecast of Oilfield Services Market development in 2019-2024	84
6.1	Methodology and cautionary notes	84
6.2	Kazakhstan OFS Market forecast for 2019-2024	86
7	Upstream Activity in Kazakhstan in 2007-2018	98
7.1	Development and exploratory drilling.....	98
7.2	Producing wells stock	109
7.3	Workovers.....	112
7.4	Well servicing.....	113
7.5	Well bore stimulation	115
7.6	Artificial Lift Systems and optimization	116
7.7	ALS installations (switching to ALS from fountain).....	120
7.8	Water injection	122
7.9	Key Oil Field Capacities Overview	123
8	Atyrau region	127
8.1	Oilfield Services market in Atyrau (including NCOC)	128
8.2	Hydrocarbons Production by Company.....	138
8.3	Key Physical Activity in Atyrau by Company in 2007-2018.....	142
8.4	Estimates of Oil Field Capacities in Atyrau	149
8.5	Oil and Gas Companies in the Atyrau	151
8.5.1	TCO (TengizChevrOil).....	151
8.5.2	OA Embamunaigas (subsidiary of EP Kazmunaigas).....	155
8.5.3	Korea National Oil Corp (KNOC and Alties Petroleum)	158
8.5.4	Maten Petroleum (ARNAOIL and Matin).....	162
8.5.5	TOO Sazankurak	166
8.5.6	TOO ANACO.....	167
8.5.7	Potencial Oil	168
8.5.8	Manash Petroleum (Samek International)	169
8.5.9	Tanday Petroleum	173

8.5.10	Aday Petroleum	175
8.5.11	Atyraumunai	175
8.5.12	AO Kaspi Neft	176
8.5.13	North Caspian Oil Development.....	179
8.5.14	TOO Kozhan	180
9	Caspian Offshore	181
9.1	Kashagan project history and key characteristic (North Caspian Operating Company).....	181
9.2	Oil Field Services in Kashagan project	185
9.3	Other offshore projects	188
9.3.1	Block N (N Operating Company).....	189
9.3.2	Caspian Meruerty Operating Company B.V (Zhemchuzhny or Pearls Block)	189
9.3.3	Kurmangazy Petroleum	191
9.3.4	Tyub-Karagan and Atashsky Blocks (liquidated).....	191
9.3.5	Zhambay (liquidated)	192
9.3.6	Dzhambul (Zhambyl)	193
9.3.7	CenterCaspNeftegas.....	194
10	Mangistau	195
10.1	Oilfield Services market in Mangistau	196
10.2	Hydrocarbons Production by Company in Mangistau region.....	204
10.3	Key Physical Activity in Mangistau by Company in 2007-2018.....	210
10.4	Estimates of Oil Field Capacities in Mangistau	220
10.5	Oil and Gas Companies in the Mangistau region.....	221
10.5.1	OA Uzenmunaigas (Ozenmunaigas)	222
10.5.2	Mangistaumunaigas	225
10.5.3	CCEL (Karazhanbasmunai (KMG EP and CITIC))	228
10.5.4	Buzachi Operating Ltd. (CNPC and Sinopec).....	231
10.5.5	Karakudukmunai (Sinopec).....	233
10.5.6	Total E&P Dunga (Maersk Oil Kazakhstan)	235
10.5.7	Emir Oil	236
10.5.8	Beineumunaigas (Former Tristan Oil (Kazpolmunai and Tolkynneftegas))	237
10.5.9	Petrom S.A. (Tasbulat and Kom-munai)	239
10.5.10	Tabynay	241
10.5.11	Jupiter Energy Limited	242
10.5.12	Aktau Transit	243
10.5.13	Kamenistoe-Neft	245
11	West Kazakhstan	247
11.1	Oilfield Services market in West Kazakhstan region in 2007-2018	248
11.2	Hydrocarbons production by company in West Kazakhstan region.....	255
11.3	Key Physical Activity in West Kazakhstan by Company in 2007-2018	256
11.4	Estimates of Oil Field Capacities in West Kazakhstan.....	259
11.5	Oil and Gas Companies in the West Kazakhstan	260
11.5.1	Karachaganak field (KPO)	260
11.5.2	Nostrum (Zhaikmunai).....	265
11.5.3	Exploration activity of KMG EP in the region	270
11.5.4	Ural Oil and Gas	270
12	Aktyubinsk	272
12.1	Oilfield Services market in Aktyubinsk region in 2007-2018	272
12.2	Hydrocarbons production by company in Aktyubinsk region	282
12.3	Key Physical Activity in Aktyubinsk by Company in 2007-2018.....	288
12.4	Estimates of Oil Field Capacities in Aktyubinsk	295
12.5	Oil and Gas Companies in the Aktyubinsk	297
12.5.1	CNPC-Aktobemunaigas (CNPC).....	298
12.5.2	Kazakhoil-Aktobe (KMG EP and SINOPEC).....	302
12.5.3	Kazakhturkmunai (KMG EP).....	304
12.5.4	Exploration activity of KMG EP in the region	305

12.5.5	KMK Munai (CNPC).....	305
12.5.6	Firma ADA Oil	308
12.5.7	Lionsjump	309
12.5.8	Kaspil Neft TME	311
12.5.9	Sagiz Petroleum.....	312
12.5.10	JV FIAL.....	313
12.5.11	TOO Aman Munai (former Kazakhmys Petroleum).....	314
12.5.12	TetisAralGas (Tethys).....	316
13	Kyzylorda	319
13.1	Oilfield Services market in Kyzylorda region in 2007-2018	320
13.2	Hydrocarbons production by company in Kyzylorda region	327
13.3	Key Physical Activity in Kyzylorda by Company in 2007-2018	333
13.4	Estimates of Oil Field Capacities in Kyzylorda.....	341
13.5	Oil and Gas Companies in the Kyzylorda	342
13.5.1	PetroKazakhstan Kumkol Resources and PetroKazakhstan Inc.	343
13.5.2	JV Kazgermunai	346
13.5.3	Turgai Petroleum.....	348
13.5.4	TOO Kolzhan	350
13.5.5	Kuatamlonmunai	351
13.5.6	Sauts-Oil (South-Oil).....	353
13.5.7	JS NC KOR	355
14	South Kazakhstan and other regions	358
14.1.1	Tarbagatai Munai	360
15	Key Oil Field Services Companies in Kazakhstan.....	361
15.1	Competitive environment in Kazakhstan's OFS market and market shares	361
15.2	AO KazPetroDrilling.....	363
15.2.1	MHINDUSTRY.....	366
15.2.2	Astra Star Limited	368
15.2.3	MunaiFildServices.....	368
15.3	KMG Drilling and Services (NC KMG subsidiary).....	369
15.4	Schlumberger.....	371
15.5	Halliburton	372
15.6	Baker Hughes, a GE company	374
15.7	Weatherford	375
15.8	Parker Drilling (Chapter 11 from Dec 2018)	377
15.9	Nabors.....	379
15.10	Saipem	382
15.11	SaiPar Drilling Company B.V. (JV Saipem and Parker Drilling).....	385
15.12	PeWeTe (former C.A.T. oil AG)	386
15.12.1	TRICAN (PeWeTe from 2016)	389
15.13	CNPC related drilling companies	393
15.13.1	Sino-Kazakhstan "Great Wall" Drilling Company (SKGW)	395
15.13.2	CNPC XiBu Engineering Company.....	397
15.13.3	Vostok Neft I Servisnoe Obsluzhivanie	398
15.13.4	Aktobemunaiservice.....	399
15.14	Sun Drilling LLP (terminated).....	399
15.15	Sinopec drilling subsidiaries.....	400
15.16	Batys-Munai LLP.....	401
15.17	Nefteservisesholding.....	404
15.17.1	Ontustic Munaigas (AO OMG)	406
15.17.2	TOO Yugo-Vostochnaya Servisnaya Gruppa (YuVSG)	408
15.17.3	LLP Geophysical Company Caspiy.....	410
15.18	NeftTekhService.....	410
15.19	EDC and BKE-Shelf	413
15.20	Azimuth Energy Services (IGSS)	414

15.21	Caspian Services Inc.....	416
15.22	Zhanros Drilling.....	419
15.23	Tulpar Munai Service LLP.....	420
15.24	Smart Oil.....	422
15.25	EXALO (former Poiski Nefti I Gaza Krakow).....	423
15.26	OMG PM Lucas.....	424
15.27	AO Uralskneftegazgeologiya.....	427
15.28	CATkaz LTD.....	428
15.29	Kezbi.....	429
15.30	Akpan LLP.....	430
15.31	MAIX LLC.....	432
15.32	KRUZ LLP.....	433
15.33	FracJet.....	433
15.34	Mangistaugeologia.....	435
15.35	Syrdariamunai.....	435
15.36	Kazburgaz.....	436
15.37	Equipment Services Ltd.....	438
15.38	Other drilling companies list.....	438
15.39	Petrofrac.....	439
15.40	JV of CB&I, Worley Parsons and Aker Solutions.....	440

LIST OF FIGURES AND TABLES

Figure 2-1 Crude oil and condensate production by key industry asset owner (million tons in 2018)	20
Figure 2-2 Gas production share of key industry player (bcm in 2018)	21
Table 2-3 Export taxes in Kazakhstan at various price and production levels (\$ bbl)	23
Figure 2-4 EP KazMunaiGas exported crude taxes in 2014-2018 compared to Russian export taxes levels (\$ bbl)	23
Figure 2-5 National Company KazMunaiGas ownership and holdings structure	25
Table 2-6 NC KMG revenue and net income in 2010- 1H 2018 (million USD)	26
Figure 2-7 NC KMG share in oil production by subsidiary and JV in 2008-2018 (mln tons)	26
Figure 2-8 NC KMG accounting CAPEX including KMG EP in 2013-2018 (\$ and KZT bln)	27
Figure 2-9 NC KMG exploration CAPEX in 2015-2017 (\$ bln)	27
Figure 2-10 KMG EP at glance	28
Figure 2-11 KMG EP production in 2006-2018 by key assets (million tons)	29
Figure 2-12 KMG EP production planned production for 2015-2018 by key subsidiaries (thousand barrels daily)	29
Figure 2-13 KMG EP actual production '15-'18 and plans for 2016 and 2020 (million tons)	30
Figure 2-14 KMG EP CAPEX in 2007-2017 and planned for 2015-2018 (\$ bln)	30
Figure 2-15 KMG EP CAPEX in 2014-2018 and plan till 2021 (bln Tenge)	32
Figure 2-16 KMG EP CAPEX structure in 2013-2016 and planned for 2014-2018 (\$ mln)	32
Table 2-17 KMG EP revenue and net income in 2008- 1H 2018 (million USD)	33
Figure 2-18 KMG EP – local currency share in OPEX and CAPEX in 2014	34
Figure 2-19 KMG EP lifting costs in 16 Quarters till 1st H 2017 (\$ bbl)	34
Figure 2-20 KMG EP lifting costs translated into cash expenses in 2013-1H 2018 (billion Tenge)	35
Figure 2-21 KMG EP lifting costs and other cash operating expenses 2013-2017 (billion Tenge)	35
Figure 2-22 KMG EP netbacks in 2014-1H 2018 (\$ bbl)	36
Figure 2-23 KMG EP Exploration CAPEX in 2010-2018 (\$mln)	36
Table 2-24 KMG EP seismic activity in 2010 - 2014	37
Figure 2-25 CNPC domestic and international crude production in 2010-2017 (million tons)	38
Figure 2-26 CNPC revenue in 2010-2017 (\$ bln)	38
Figure 2-27 Change in activity levels of companies in Kazakhstan with CNPC interest (2007=100%)	39
Figure 2-28 Change in activity levels of companies in Kazakhstan with CNPC interest excluding MMG (2007=100%)	40
Table 2-29 Oil companies with Chinese interest investments by field 2009 (\$ thousands)	41
Table 2-30 Forecasted and actual production of oil companies with Chinese interest in 2011-2020	43
Table 3-1 Fields in Kazakhstan by type	46
Table 3-2 Crude and condensate reserves at largest fields in Kazakhstan (mt)	46
Map 3-3 Crude and condensate reserves distribution by Kazakhstan regions (%)	46
Figure 3-4 Largest fields (license blocks) crude and condensate production in Kazakhstan in 2018 (mln tons)	47
Figure 3-5 Number of licensing blocks by production level in 2015 (thousand tons average in a group)	47
Table 3-6 Gas reserves at largest fields in Kazakhstan	48
Map 3-7 Gas reserves distribution by Kazakhstan regions (%)	48
Figure 4-1 Oil production in Kazakhstan in 2002-2018 (million tons)	50
Figure 4-2 Daily oil and condensate production in Kazakhstan in 2016-Dec 2018 (mbd)	51
Figure 4-3 Oil and condensate production in Kazakhstan by region in 2007-2018 (million tons)	52
Figure 4-4 Incremental production in Kazakhstan by region in 2018 to 2013 to 2004 (million tons per annum)	52
Figure 4-5 Incremental crude production in Kazakhstan by region in 2015 to 2018 (million tons per annum)	53
Figure 4-6 Oil production in Kazakhstan by key producer group in 2002-2018 (million tons)	54
Figure 4-7 Incremental production by largest projects in Kazakhstan in 2018 to 2013 to 2004 (million tons per annum)	54
Figure 4-8 Incremental production by largest projects in Kazakhstan in 2018 to 2013 (million tons a year)	55
Figure 4-9 Crude and condensate export from Kazakhstan by key route in 2013-2014 (mt)	56
Figure 4-10 Crude and condensate export from Kazakhstan by key route in 2016 (mt)	57
Figure 4-11 Gas production in Kazakhstan by region in 2003-2018 (bcm)	58
Figure 4-12 Incremental gas production in Kazakhstan by region in 2018 to 2003 (bcm per annum)	58
Figure 4-13 Gas production in Kazakhstan by group of producers in 2003- 2018 (bcm per annum)	59
Figure 5-1 Kazakhstan OFS market in 2007-2018 (\$ bln and Tenge bln)	60
Figure 5-2 Tenge exchange rate and official inflation in 2007-2018 (\$ millions)	61
Figure 5-3 Change in Tenge exchange rate, Brent and Ruble in 2013-2018 (Jan 2013=0%)	62
Figure 5-4 Change in relationship between oil price and Tenge exchange rate	63
Figure 5-5 Oilfield Services Market structure by key segments in 2007-2018 (\$ millions)	65
Figure 5-6 Oilfield Services Market structure by key segments in 2007-2018 (KZT bln)	65
Figure 5-7 Oilfield Services Market structure by key clients in 2011 and in 2014-2018 (% in accordance to ownership structure)	66
Figure 5-8 Oilfield services market structure by key segments in 2018	66
Figure 5-9 Oilfield Services Market structure by key segments in 2007-2018 (%)	67
Figure 5-10 Regional oilfield services market in 2007-2018 (million USD)	68
Figure 5-11 Regional oilfield services market in 2007-2018 (billion KZT)	68

Figure 5-12 Complex projects oilfield services share in 2007-2018 (million USD)	69
Figure 5-13 Rig mobilization and rig-up in 2007-2018 (million USD)	70
Figure 5-14 Rig mobilization and rig-up in 2007-2018 (billion KZT)	70
Figure 5-15 Apparent average footage in development and exploratory drilling in 2007-2018 (meters per well)	71
Figure 5-16 Drilling market in development, exploration and sidetracking in 2007-2018 (million USD)	72
Figure 5-17 Change in drilling segment in 2018 and 2016 to 2014 (%)	72
Figure 5-18 Drilling market in development, exploration and sidetracking in 2007-2018 (bln KZT)	73
Figure 5-19 Development and exploration drilling expenditure by Complex Projects in 2007-2018 (million USD)	73
Figure 5-20 Drilling fluids segment in development, exploration and sidetracking in 2007-2015 (million USD)	74
Figure 5-21 Drilling bits segment in development, exploration and sidetracking in 2007-2018 (million USD)	75
Figure 5-22 Wireline segment in 2007-2018 (million USD)	75
Figure 5-23 Logging open hole sub-segment in 2007-2018 (million USD)	76
Figure 5-24 Logging cased hole sub-segment in 2007-2018 (million USD)	77
Figure 5-25 Perforation sub-segment in 2007-2018 (million USD)	77
Figure 5-26 Turbines and their servicing segment in 2007-2018 (million USD)	78
Figure 5-27 MWD/LWD segment in 2007-2018 (million USD)	79
Figure 5-28 Pressure pumping segment in 2007-2018 (million USD)	79
Figure 5-29 Cementing sub-segment in 2007-2016 (million USD)	80
Figure 5-30 Fracturing sub-segment in 2007-2018 (million USD)	80
Figure 5-31 Coiled tubing segment in 2007-2018 (million USD)	81
Figure 5-32 Casing costs in 2007-2018 (million USD)	81
Figure 5-33 Completion costs in 2007-2018 (million USD)	82
Figure 5-34 Workover and well servicing segment in 2007-2018 (million USD)	83
Figure 5-35 Seismic segment in 2007-2018 (million USD)	83
Figure 6-1 Crude oil production forecast for by regions 2019-2024 (million tons)	84
Figure 6-2 Forecasted drilling footage in Kazakhstan by region in 2016-2024 (thousand meters)	86
Figure 6-3 Forecasted Workovers in Kazakhstan by region in 2019-2024 (jobs)	86
Figure 6-4 Forecasted well servicing in Kazakhstan by region in 2019-2024 (jobs)	87
Figure 6-5 Oilfield Services Market structure by key segments in 2019-2024 (\$ millions)	87
Figure 6-6 Oilfield services market structure by key segments in 2024 (% of total)	88
Figure 6-7 Regional oilfield services market in 2019-2024 (million USD)	88
Figure 6-8 Regional contribution to oilfield services market in 2021 and 2024 (million USD)	89
Figure 6-9 Complex projects oilfield services share in 2019-2024 (million USD)	89
Figure 6-10 Rig mobilization and rig-up in 2019-2024 (million USD)	90
Figure 6-11 Development, exploration and sidetracking drilling segments in 2019-2024 (million USD)	90
Figure 6-12 Drilling fluids segment in development, exploration and sidetracking in 2019-2024 (million USD)	91
Figure 6-13 Drilling bits segment in development, exploration and sidetracking in 2019-2024 (million USD)	91
Figure 6-14 Wireline segment in 2019-2024 (million USD)	92
Figure 6-15 Logging open hole sub-segment in 2019-2024 (million USD)	92
Figure 6-16 Logging cased hole sub-segment in 2019-2024 (million USD)	93
Figure 6-17 Perforation sub-segment in 2019-2024 (million USD)	93
Figure 6-18 Turbines and their servicing segment in 2019-2024 (million USD)	93
Figure 6-19 MWD/LWD segment in 2019-2024 (million USD)	94
Figure 6-20 Pressure pumping segment in 2019-2024 (million USD)	94
Figure 6-21 Cementing sub-segment in 2019-2022 (million USD)	95
Figure 6-22 Fracturing sub-segment in 2019-2024 (million USD and number of jobs)	95
Figure 6-23 Casing costs in 2019-2024 (million USD)	96
Figure 6-24 Completion costs in 2019-2024 (million USD)	96
Figure 6-25 Workover and well servicing segments in 2019-2024 (million USD)	97
Figure 6-26 Seismic segment in 2019-2024 (million USD)	97
Figure 7-1 Drilling in Kazakhstan in 2000-2018 (footage in thousand meters)	98
Figure 7-2 Brent price and Drilling in Kazakhstan in 2000-2018 (footage in thousand meters and \$ bbl)	99
Figure 7-3 Crude price and drilling in Kazakhstan (forecast of drilling depending on crude price)	99
Figure 7-4 Exploration drilling correlation to oil price in Kazakhstan in 2007-2018 (footage in thousand meters)	100
Figure 7-5 Development drilling correlation to oil price in Kazakhstan in 2000-2018 (footage in thousand meters)	100
Figure 7-6 Drilling intensity in Kazakhstan by large and other than large projects in 2000 -2018 (footage per liquids production)	101
Figure 7-7 Production forecast of other than large projects depending on footage	102
Figure 7-8 Share of offshore and complex drilling in Kazakhstan in 2007-2018 (% of total footage)	103
Figure 7-9 Development and exploration drilling in Kazakhstan in 2007-2018 (footage in thousand meters)	104
Figure 7-10 Drilling by a region in Kazakhstan in 2007-2018 (footage in thousand meters)	105
Figure 7-11 Change in drilling footage by a region in Kazakhstan in 2018 to 2016 and 2013 (thousand meters)	106
Figure 7-12 Drilling footage by a region in Kazakhstan in 2007-2018 (in %)	107
Figure 7-13 Daily drilling in 2007- 2018 (thousand meters a day in a month)	107

Figure 7-14 Development drilling footage by region in Kazakhstan in 2007-2018 (thousand meters)	108
Figure 7-15 Exploration drilling footage by region in Kazakhstan in 2007-2018 (thousand meters)	108
Figure 7-16 Number of new wells in Kazakhstan in 2007-2018	109
Figure 7-17 Type of producing wells in Kazakhstan in 2007-2018 (units in thousands by type)	109
Figure 7-18 Crude and condensate production by type of lift in 2013-2016 and estimates for 2018 (mln tons)	110
Figure 7-19 Crude and condensate flows by type of lift in 2013-2016 (tons a day per well in stock)	110
Figure 7-20 Liquids production by type of lift in 2013-2016 (mln tons)	111
Figure 7-21 Liquids flows by type of lift in 2013-2016 (tons a day per well in stock)	111
Figure 7-22 Water cut by type of lift in 2013-2016 (% of water)	111
Figure 7-23 Workovers by region in Kazakhstan in 2007-2018 (jobs)	112
Figure 7-24 Production well coverage by workovers by region in Kazakhstan in 2007 – 2018 (% of wells)	113
Figure 7-25 Well servicing by region in Kazakhstan in 2007-2018 (jobs)	114
Figure 7-26 Production well coverage by well servicing by region in Kazakhstan in 2007 - 2018 (% of wells)	114
Figure 7-27 Well bore stimulation by region in Kazakhstan in 2007-2018 (jobs)	115
Figure 7-28 Incremental production from well bore stimulation by region in Kazakhstan in 2007-2018 (thousand tons)	115
Figure 7-29 Estimated daily flows from well bore stimulation by region in Kazakhstan in 2007-2018 (tons a day per job)	116
Figure 7-30 Rod pump equipped wells by region in Kazakhstan in 2007-2018 (wells)	116
Figure 7-31 ESP equipped wells by region in Kazakhstan in 2007-2018 (thousand wells)	117
Figure 7-32 Fountain wells by region in Kazakhstan in 2007-2018 (wells)	117
Figure 7-33 Cavity pump equipped wells by region in Kazakhstan in 2007-2018 (wells)	118
Figure 7-34 Gas lift wells by region in Kazakhstan in 2007-2018 (wells)	118
Figure 7-35 ALS optimization by region in Kazakhstan in 2007-2018 (jobs)	119
Figure 7-36 Incremental production from ALS optimization by region in Kazakhstan in 2007-2018 (thousand tons)	119
Figure 7-37 Estimated average daily flows from ALS optimization by region in Kazakhstan in 2007-2018 (tons a day per job) ..	120
Figure 7-38 ALS installations by region in Kazakhstan in 2007-2018 (jobs)	120
Figure 7-39 Incremental production from ALS installations by region in Kazakhstan in 2007-2018 (thousand tons)	121
Figure 7-40 Estimated average daily flows from ALS installations by region in Kazakhstan in 2007-2018 (tons a day per job) ..	121
Figure 7-41 Water by region in Kazakhstan in 2007-2018 (million cubic meters)	122
Figure 7-42 Water injected, and water lifted in 2013-2016 (mln tons and %)	122
Figure 7-43 Water by region in Kazakhstan in 2007-2018 (cubic meters per ton of hydrocarbon liquids)	123
Figure 7-44 Estimated onshore drilling rigs in Kazakhstan by region in 2007-2018 (rigs)	123
Figure 7-45 Onshore drilling rigs fleet by hook load and most common types (rigs)	124
Figure 7-46 Estimated split by hook load in regions of Kazakhstan (%)	124
Figure 7-47 Average estimated footage in Kazakhstan by region in 2007-2018 (thousand meters per rig per year)	125
Figure 7-48 Estimated number of workover/ servicing rigs in Kazakhstan by region in 2007-2015 (rigs)	125
Figure 7-49 Workover rigs in Kazakhstan by ownership 2011-15-18 (rigs)	126
Map 8-1 Fields location in Atyrau region	127
Figure 8-2 Oilfield Services Market size in Atyrau in 2007-2018 (million USD)	128
Figure 8-3 Estimated TCO share in OFS market in Atyrau in 2007-2018 (million USD)	129
Figure 8-4 Estimated TCO share in OFS market in Atyrau in 2007-2018 (KZT bln)	129
Table 8-5 Estimated spending of largest OFS customers in Atyrau in 2007-2018 (million USD)	130
Figure 8-6 Rig mobilization and rig-up in Atyrau in 2007-2018 (million USD)	130
Figure 8-7 Apparent average footage in development and exploratory drilling in Atyrau in 2007-2018 (meters)	131
Figure 8-8 Drilling market in development, exploration and sidetracking in Atyrau in 2007-2018 (million USD)	131
Figure 8-9 Drilling fluids segment in development, exploration and sidetracking in Atyrau in 2007-2018 (million USD)	132
Figure 8-10 Drilling bits segment in development, exploration and sidetracking in Atyrau in 2007-2018 (million USD)	132
Figure 8-11 Turbines and their servicing segment in Atyrau in 2007-2018 (million USD)	133
Figure 8-12 Wireline segment in Atyrau in 2007-2018 (million USD)	133
Figure 8-13 Logging open hole sub-segment in Atyrau in 2007-2018 (million USD)	134
Figure 8-14 Logging cased hole sub-segment in Atyrau in 2007-2018 (million USD)	134
Figure 8-15 Perforation sub-segment in 2007-2018 (million USD)	134
Figure 8-16 MWD/LWD segment in Atyrau in 2007-2018 (million USD)	135
Figure 8-17 Pressure pumping segment in Atyrau in 2007-2018 (million USD)	135
Figure 8-18 Cementing sub-segment in Atyrau in 2007-2018 (million USD)	136
Figure 8-19 Casing and completion costs in Atyrau in 2007-2018 (million USD)	136
Figure 8-20 Workover segment in Atyrau in 2007-2018 (million USD)	137
Figure 8-21 Crude production in Atyrau region by company in 2007-2018 (thousand tons)	138
Figure 8-22 Number of licensing blocks by production level in 2015 in Atyrau (thousand tons average in a group)	139
Figure 8-23 Gas production in Atyrau region by company in 2007-2018 (billion cubic meters)	139
Figure 8-24 Gas factor in Atyrau region by company in 2007-2018 (thousand cubic meters per ton)	140
Table 8-25 Well stock in Atyrau region in 2007-2018 (wells by type)	140
Figure 8-26 Liquids total production by a type of lift in Atyrau in 2013-2016 (mln tons)	141
Figure 8-27 Crude and condensate production by a type of lift in Atyrau in 2013-2016 (mln tons)	141
Figure 8-28 Liquids total production by a type of lift in Atyrau in 2013-2016 (tons a day per well)	141

Figure 8-29 Crude production by a type of lift in Atyrau in 2013-2016 (tons a day per well)	142
Figure 8-30 Water cut by a type of lift in Atyrau in 2013-2016 (% of water)	142
Figure 8-31 Development drilling in Atyrau region by company in 2007-2018 (thousand meters)	143
Figure 8-32 Exploration drilling in Atyrau region by company in 2007-2018 (thousand meters)	144
Figure 8-33 Producing wells in Atyrau region by company in 2007-2018	144
Figure 8-34 Workovers in Atyrau region by company in 2007-2018 (jobs)	145
Figure 8-35 Well servicing in Atyrau region by company in 2007-2018 (jobs)	145
Figure 8-36 Well bore stimulations in Atyrau region by company and incremental production in 2007-2018 (jobs and thousand tons)	146
Figure 8-37 ALS optimization in Atyrau region by company and incremental production in 2007-2018 (jobs and thousand tons)	147
Figure 8-40 ALS installations in Atyrau region by company and incremental production in 2007-2018 (jobs and thousand tons)	147
Figure 8-39 Water injection by key company in Atyrau region in 2007-2018 (million cubic meters)	148
Figure 8-40 Water injection rates by largest injectors in Atyrau region in 2007-2018 (cubic meters per ton of crude)	148
Figure 8-41 Onshore drilling rigs in Atyrau by key company in 2007-2018 (rigs)	149
Figure 8-42 Apparent onshore drilling rigs footage in Atyrau by key company in 2007-2018 (thousand meters per rig)	150
Figure 8-43 Estimated number of workover and well servicing crews in Atyrau by company in 2018 (well servicing and workover crews)	150
Figure 8-44 Largest oil and gas companies in Atyrau region (% of production)	151
Table 8-45 TCO crude and gas production in 2007-2018	153
Figure 8-46 Payments of TCO to Kazakhstan and Brent in 2010-2017 (\$ per bbl of crude production)	153
Table 8-47 TCO revenue and net income in 2010-2017 (mln USD)	153
Figure 8-48 TCO CAPEX in 2010-2017 (\$ bln)	154
Table 8-49 Future Growth Project incremental capacities	154
Table 8-50 Embamunaigas fields 3P reserves (million barrels)	156
Map 8-51 Embamunaigas fields location	156
Table 8-52 Embamunaigas crude and gas production in 2007-2018	157
Table 8-53 AO Embamunaigas revenue and net income in 2012-2017 (mln USD)	158
Table 8-54 KNOC fields	158
Table 8-55 Altius Crude production in 2007-2015	161
Table 8-56 Altius Petroleum CAPEX breakdown in 2008- 1 st H 2010 (USD thousand)	162
Figure 8-57 Historical production from Maten assets 2004-2015 (thousand tons per year)	162
Table 8-58 Maten crude and gas production in 2018	163
Table 8-59 Maten revenue, net income and CAPEX in 2011-2017 (mln USD)	163
Table 8-60 Maten Petroleum CAPEX breakdown in 2011- 1 st H 2012 (mln USD)	163
Table 8-61 ARNAOIL crude and gas production in 2007-2011 and 2015	164
Table 8-62 ARNAOIL revenue and net income in 2007-2010 (mln USD)	164
Table 8-63 Matin crude and gas production in 2007-2011 and in 2015	165
Table 8-64 Matin indicative upstream spending in 2010 (USD and Tenge)	165
Table 8-65 Matin indicative upstream spending in 2011-2013 and service supplier (USD and Tenge)	166
Table 8-66 Matin revenue and net income in 2007-2010 (mln USD)	166
Table 8-67 Sazankurak crude and gas production in 2007-2018	166
Table 8-68 Sazankurak revenue in 2009-2017 (mln USD)	167
Table 8-69 ANACO crude and gas production in 2007-2018	167
Table 8-70 ANACO revenue and income in 2009-2014 (mln USD)	167
Table 8-71 Potencial Oil crude and gas production in 2007-2015	168
Figure 8-72 Potencial Oil production plans for 2012-2030 (thousand tons)	168
Table 8-73 Potencial Oil revenue in 2009-2014 (mln USD)	169
Table 8-74 Samek International crude and gas production in 2007-2018	171
Figure 8-75 Samek International daily production in 12 months of 2015 (thousand tons a day)	172
Table 8-76 Samek International revenue in 2007-2013 and Manash Petroleum in 2015-2017 (mln USD)	173
Table 8-77 Max Petroleum revenue in 2010-2014 (thousand USD)	173
Table 8-78 Max Petroleum CAPEX in 2010-2014 (mln USD)	173
Table 8-79 Tanday Petroleum crude and gas production in 2007-2018	174
Table 8-80 Tanday Petroleum revenue in 2009-2014 (thousand USD)	174
Table 8-81 Tanday Petroleum indicative upstream spending in 2010 (USD and Tenge)	174
Table 8-82 Atyraunai crude and gas production in 2007-2018	176
Table 8-83 Atyrau indicative upstream spending in 2009- 2010 (USD and Tenge)	176
Table 8-84 Atyraunai revenue in 2012-2017 (mln USD)	176
Table 8-85 AO Kaspi Neft crude and gas production in 2007-2018	177
Figure 8-86 AO Kaspi Neft crude domestic and export sales in 2011-2014 (thousand tons)	177
Table 8-87 Kaspii Neft revenue in 2011- 2017 (mln USD)	178
Figure 8-88 AO Kaspi Neft crude CAPEX in 2013 and plans for 2015-2021 (mln USD)	178

Table 8-89 North Caspian Development crude and gas production in 2013-2018	179
Table 8-90 North Caspian Development loss in 2013-2017 (thousand USD)	179
Table 8-91 Kozhan crude and gas production in 2008-2018	180
Table 8-92 Kozhan revenue in 2012- 2017 (mln USD).....	180
Map 9-1 North Caspian Operating Company Oil Fields.....	181
Table 9-2 NCOC crude and gas production in 2016-2018	184
Figure 9-3 NCOC estimated OFS expenditures in 2007-2018 (\$ millions)	185
Map 9-4 Kashagan Phase I and Phase II islands	186
Map 9-5 Kazakhstan offshore projects.....	188
Table 9-6 Zhemchuzhny Block CAPEX in 2010-2012 (\$ mln)	190
Map 10-1 Key fields location in Mangistau region	195
Figure 10-2 Oilfield Services Market size in Mangistau in 2007-2018 (million USD).....	196
Table 10-3 Estimated spending of largest OFS customers in Mangistau in 2007-2015 (million USD).....	196
Figure 10-4 Rig mobilization and rig-up in Mangistau in 2007-2018 (million USD).....	197
Figure 10-5 Apparent average footage in development and exploratory drilling in Mangistau in 2007-2018 (meters).....	197
Figure 10-6 Drilling market in development, exploration and sidetracking in Mangistau in 2007-2018 (million USD)	198
Figure 10-7 Drilling fluids segment in development, exploration and sidetracking in Mangistau in 2007-2018 (million USD)	199
Figure 10-8 Drilling bits segment in development, exploration and sidetracking in Mangistau in 2007-2018 (million USD)	199
Figure 10-9 Turbines and their servicing segment in Mangistau in 2007-2018 (million USD).....	200
Figure 10-10 Wireline segment in Mangistau in 2007-2018 (million USD)	200
Figure 10-11 Logging open hole sub-segment in Mangistau in 2007-2018 (million USD).....	201
Figure 10-12 Logging cased hole sub-segment in Mangistau in 2007-2018 (million USD).....	201
Figure 10-13 Perforation sub-segment in 2007-2018 (million USD)	201
Figure 10-14 MWD/LWD segment in Mangistau in 2007-2018 (million USD)	202
Figure 10-15 Pressure pumping segment in Mangistau in 2007-2018 (million USD).....	202
Figure 10-16 Cementing sub-segment in Mangistau in 2007-2018 (million USD).....	203
Figure 10-17 Completion and casing costs in Mangistau in 2007-2018 (million USD)	203
Figure 10-18 Workover segment in Mangistau in 2007-2018 (million USD).....	204
Figure 10-19 Crude production in Mangistau region by company in 2007-2018 (million tons).....	205
Figure 10-20 Number of licensing blocks by production level in 2015 and 2018 in Mangistau (in boxes thousand tons average in a group)	206
Figure 10-21 Incremental crude production in Mangistau region by company from 2004 to 2014 and in 2015 to 2014 (thousand tons)	206
Figure 10-22 Incremental crude production in Mangistau region by company in 2017-2018 (thousand tons).....	207
Figure 10-23 Gas production in Mangistau region by company in 2007-2018 (million cubic meters).....	207
Figure 10-24 Gas factor in Mangistau region by company in 2008-2018 (thousand cubic meters per ton)	208
Table 10-25 Well stock in Mangistau region in 2007-2018 (wells by type).....	208
Figure 10-26 Liquids total production by a type of lift in Mangistau in 2013-2016 (mln tons)	209
Figure 10-27 Crude and condensate production by a type of lift in Mangistau in 2013-2016 (mln tons).....	209
Figure 10-28 Liquids total production by a type of lift in Mangistau in 2013-2016 (tons a day per well).....	209
Figure 10-29 Crude production by a type of lift in Mangistau in 2013-2016 (tons a day per well).....	210
Figure 10-30 Water cut by a type of lift in Mangistau in 2013-2016 (% of water)	210
Figure 10-31 Development drilling in Mangistau region by company in 2007-2018 (thousand meters).....	212
Figure 10-32 Exploration drilling in Mangistau region by company in 2007-2018 (thousand meters)	212
Figure 10-33 Mangistau producing well stock in 2007-2018.....	213
Figure 10-34 Workovers in Mangistau region by company in 2007-2018 (jobs).....	213
Figure 10-35 Mangistaumunaigas number of Workovers reported previously and changes 2007-2014 (jobs)	214
Figure 10-36 Coverage of well stock by workovers in Mangistau region by company in 2007, 2013 - 2018 (%).....	214
Figure 10-37 Well servicing in Mangistau region by company in 2007-2018 (jobs).....	215
Figure 10-38 Coverage of well stock by well servicing in Mangistau region by largest company in 2007, 2013- 2018 (%)	216
Figure 10-39 Well bore stimulations in Mangistau region by company and incremental production in 2007-2018 (jobs and thousand tons)	216
Figure 10-40 ALS optimization in Mangistau region by company and incremental production in 2007-2018 (jobs and thousand tons on a right-hand scale)	217
Figure 10-41 ALS installations in Mangistau region by company and incremental production in 2007-2018 (jobs and thousand tons)	218
Figure 10-42 Water injection by key company in Mangistau region in 2007-2018 (million cubic meters)	219
Figure 10-43 Water injection rates by largest injectors in Mangistau region in 2007-2018 (cubic meters per ton of crude).....	219
Figure 10-44 Onshore drilling rigs in Mangistau by company in 2007-2018 (rigs).....	220
Figure 10-45 Apparent onshore drilling rigs footage in Mangistau by key company in 2007-2014 (thousand meters per rig)	220
Figure 10-46 Number of workover and well servicing crews in Mangistau by key company in 2018.....	221
Figure 10-47 Largest oil and gas companies in Mangistau region (% of regional production).....	221
Table 10-48 Uzenmunaigas crude production in 2007-2018	222
Figure 10-49 Uzenmunaigas workovers and servicing in 2007-2018 (jobs)	223

Figure 10-50 Uzenmunaigas monthly workovers and production in 2011 (jobs and thousand tons a month)	223
Figure 10-51 Uzenmunaigas production and drilling in 2007-2018 (mt and thousand meters)	224
Table 10-52 Ozenmunaigas revenue, cost and net income in 2012-2018 (mln USD)	224
Table 10-53 Mangistau crude and associated gas production in 2007-2018	225
Figure 10-54 Mangistaumunaigas actual and planned CAPEX in 2012-2017 (mln USD)	227
Table 10-55 Mangistaumunaigas revenue, cost and net income in 2007-2017 (\$ million).....	227
Figure 10-56 Mangistaumunaigas workovers and servicing jobs 2007-2018.....	227
Figure 10-57 Mangistaumunaigas drilling and effect from drilling in 2007-2018	228
Figure 10-58 Mangistaumunaigas domestic and export crude volumes 2013-2017 (thousand tons)	228
Table 10-59 Karazhanbasmunai crude and gas production in 2007-2017	229
Table 10-60 Karazhanbasmunai revenue and income in 2008- 2017 (\$ mln)	229
Table 10-61 Karazhanbasmunai revenue*, cost and net income in 2007-2017 (\$ million)	230
Figure 10-62 Karazhanbasmunai planned CAPEX and number of wells in 2015-2020	230
Table 10-63 Karazhanbasmunai crude disposition in 2008-2017 (thousand tons)	230
Table 10-64 Buzachi Operating Ltd crude and gas production in 2007-2018	232
Figure 10-65 North Buzachi daily production in 12 M in 2015 and 2018 (thousand tons a day)	232
Figure 10-66 Buzachi Operating workovers and servicing jobs 2007-2018.....	232
Figure 10-67 Buzachi Operating drilling and production 2007-2018	233
Table 10-68 Karakudukmunai crude and gas production in 2007-2018.....	234
Figure 10-69 Buzachi Operating drilling, workover and production 2007-2018	234
Table 10-70 Karakudukmunai revenue, cost and net income in 2007-2017 (\$ thousands).....	234
Table 10-71 Maersk Oil Kazakhstan crude and gas production in 2007-2018	235
Figure 10-72 Maersk Oil Kazakhstan drilling, workover and production 2007-2018 (thousand meters and thousand tons).....	235
Table 10-73 Emir Oil crude and gas production in 2007-2015	236
Table 10-74 Emir Oil revenue and net income in 2007-2017 (thousand USD).....	237
Table 10-75 Kazpolmunai crude and gas production in 2007-2012	238
Table 10-76 Kazpolmunai revenue and net income in 2007-2008 (thousand USD).....	238
Table 10-77 Tolkyneftegas crude and gas production in 2007-2012	238
Table 10-78 Tolkyneftegas revenue, COGS and net income in 2007-2008 (thousand USD)	239
Table 10-79 MNK KazMunaiTeniz crude and gas production in 2007-2018.....	239
Table 10-80 Tasbulat crude and gas production in 2007-2018	240
Table 10-81 Tasbulat revenue, COGS and net income in 2007-2017 (mln USD).....	240
Table 10-82 Kom-munai crude and gas production in 2007-2018	240
Table 10-83 Kom-Munay revenue, COGS and net income in 2012-2013 (mln USD).....	241
Table 10-84 Tabynay crude production in 2007-2018	241
Table 10-85 Tabynay revenue, COGS and net income in 2010-2017 (thousand USD)	242
Table 10-86 Jupiter crude production in 2012-2018.....	242
Table 10-87 Jupiter revenue and loss in 2012-2017 (thousand Australian dollars)	243
Figure 10-88 Jupiter CAPEX in 2010-2012 (\$ mln).....	243
Table 10-89 Aktau-Transit indicative upstream spending in 2010 in Tyubedzhik (USD and Tenge)	244
Table 10-90 Aktau-Transit indicative upstream spending in 2010 for Zhangurshi (USD and Tenge)	245
Table 10-91 AktauTranzit revenue, COGS and net income in 2012-2014 (thousand USD)	245
Table 10-92 Kamenistoe-Neft crude production in 2009-2015.....	246
Table 10-93 Kamenistoe revenue, COGS and net income in 2012-2014 (thousand USD)	246
Map 11-1 Key fields location in West Kazakhstan region.....	247
Figure 11-2 Oilfield Services Market size in West Kazakhstan in 2007-2018 (million USD)	248
Figure 11-3 Rig mobilization and rig-up in West Kazakhstan in 2007-2018 (million USD)	249
Figure 11-4 Apparent average footage in development and exploratory drilling in West Kazakhstan in 2007-2018 (meters)	249
Figure 11-5 Drilling market in development, exploration and sidetracking in West Kazakhstan in 2007-2018 (million USD)	250
Figure 11-6 Drilling fluids segment in development, exploration and sidetracking in West Kazakhstan in 2007-2018 (million USD)	250
Figure 11-7 Drilling bits segment in development, exploration and sidetracking in West Kazakhstan in 2007-2018 (million USD)	250
Figure 11-8 Turbines and their servicing segment in West Kazakhstan in 2007-2018 (million USD)	251
Figure 11-9 MWD/LWD segment in West Kazakhstan in 2007-2018 (million USD)	251
Figure 11-10 Wireline segment in West Kazakhstan in 2007-2018 (million USD)	251
Figure 11-11 Logging open hole sub-segment in West Kazakhstan in 2007-2018 (million USD)	252
Figure 11-12 Logging cased hole sub-segment in West Kazakhstan in 2007-2018 (million USD)	252
Figure 11-13 Perforation sub-segment in 2007-2018 (million USD)	252
Figure 11-14 Pressure pumping segment in West Kazakhstan in 2007-2015 (million USD)	253
Figure 11-15 Cementing sub-segment in West Kazakhstan in 2007-2018 (million USD)	253
Figure 11-16 Casing costs in West Kazakhstan in 2007-2018 (million USD)	254
Figure 11-17 Workover segment in West Kazakhstan in 2007-2018 (million USD).....	254
Figure 11-18 Crude production in West Kazakhstan region by company in 2007-2018 (thousand tons)	255

Figure 11-19 Gas production in West Kazakhstan region by company in 2007-2018 (billion cubic meters).....	255
Table 11-20 Well stock in West Kazakhstan region in 2007-2018 (wells by type)	256
Figure 11-21 Development drilling in West Kazakhstan region by company in 2007-2018 (thousand meters)	256
Figure 11-22 Exploration drilling in West Kazakhstan region by company in 2007-2018 (thousand meters)	257
Figure 11-23 Workovers in West Kazakhstan region by company in 2007-2018 (jobs)	257
Table 11-24 Well servicing in West Kazakhstan region by company in 2007-2018 (jobs).....	258
Figure 11-25 Well bore stimulations in West Kazakhstan region by company and incremental production in 2007-2018 (jobs and thousand tons)	258
Figure 11-26 Onshore drilling rigs in West Kazakhstan by company in 2007-2018 (rigs).....	259
Figure 11-27 Apparent onshore drilling rigs footage in West Kazakhstan by key company in 2007-2018 (thousand meters per rig)	259
Figure 11-28 Changes in KPO ownership structure	260
Table 11-29 KPO crude, condensate and gas production in 2007-2018	263
Figure 11-30 KPO gas injection in 2007-2017 (bcm)	264
Table 11-31 Agip Karachaganak B.V. financials 2009-2017	265
Table 11-32 Zhaikmunai crude and gas production in 2007-2018	267
Figure 11-33 Nostrum (Zhaikmunai) production plan/actual till 2018 in the beginning 2015 (boepd)	268
Table 11-34 Zhaikmunai marketable products in 2012-2018.....	268
Table 11-35 Zhaikmunai revenue in 2007- 2018 (million USD)	269
Figure 11-36 Nostrum (Zhaikmunai) change in drilling plans for 2015-2016	269
Table 11-37 Ural Oil and Gas loss in 2007-2014 (thousand USD).....	271
Map 12-1 Key fields location in Aktyubinsk region	272
Figure 12-2 Oilfield Services Market by segments in Aktyubinsk in 2007-2015 (million USD).....	273
Table 12-3 Estimated spending of largest OFS customers in Aktyubinsk in 2007-2018 (million USD)	274
Figure 12-4 Revenue and income (loss) of four largest oil companies in Aktyubinsk in 2012-2017 (million USD)	274
Figure 12-5 Rig mobilization and rig-up in Aktyubinsk in 2007-2018 (million USD)	275
Figure 12-6 Apparent average footage in development and exploratory drilling in Aktyubinsk in 2007-2018 (meters).....	275
Figure 12-7 Drilling market in development, exploration and sidetracking in Aktyubinsk in 2007-2018 (million USD).....	276
Figure 12-8 Drilling fluids segment in development, exploration and sidetracking in Aktyubinsk in 2007-2018 (million USD).....	276
Figure 12-9 Drilling bits segment in development, exploration and sidetracking in Aktyubinsk in 2007-2018 (million USD)	277
Figure 12-10 Turbines and their servicing segment in Aktyubinsk in 2007-2018 (million USD).....	277
Figure 12-11 MWD/LWD segment in Aktyubinsk in 2007-2018 (million USD).....	277
Figure 12-12 Wireline segment in Aktyubinsk in 2007-2018 (million USD).....	278
Figure 12-13 Logging open hole sub-segment in Aktyubinsk in 2007-2018 (million USD)	278
Figure 12-14 Logging cased hole sub-segment in Aktyubinsk in 2007-2018 (million USD)	279
Figure 12-15 Perforation sub-segment in 2007-2018 (million USD)	279
Figure 12-16 Pressure pumping segment in Aktyubinsk in 2007-2018 (million USD)	280
Figure 12-17 Cementing sub-segment in Aktyubinsk in 2007-2018 (million USD).....	280
Figure 12-18 Casing and completion costs in Aktyubinsk in 2007-2018 (million USD)	281
Figure 12-19 Workover/ servicing segment in Aktyubinsk in 2007-2018 (million USD).....	281
Figure 12-20 Crude production in Aktyubinsk region by company in 2007-2018 (million tons)	282
Figure 12-21 Number of licensing blocks by production level in 2015 and 2018 in Aktyubinsk (in boxes thousand tons average in a group)	283
Figure 12-22 Incremental crude production in Aktyubinsk region by company from 2013 to 2014 and in 2015 to 2014 (thousand tons)	283
Figure 12-23 Incremental crude production in Aktyubinsk region by company in 2017-2018 (thousand tons)	284
Figure 12-24 Gas production in Aktyubinsk region by company in 2007-2018 (billion cubic meters)	284
Figure 12-25 Gas factor in Aktyubinsk region by company in 2007-2018 (cubic meters per ton)	285
Table 12-26 Well stock in Aktyubinsk region in 2007-2018 (wells by type)	285
Figure 12-27 Liquids total production by a type of lift in Aktyubinsk in 2013-2016 (mln cubic meters).....	286
Figure 12-28 Crude and condensate production by a type of lift in Aktyubinsk in 2013-2016 (mln tons).....	286
Figure 12-29 Liquids total production by a type of lift in Aktyubinsk in 2013-2016 (tons a day per well)	287
Figure 12-30 Crude production by a type of lift in Aktyubinsk in 2013-2015 (tons a day per well)	287
Figure 12-31 Water cut by a type of lift in Aktyubinsk in 2013-2016 (% of water)	287
Figure 12-32 Development drilling in Aktyubinsk region by company in 2007-2018 (thousand meters)	288
Figure 12-33 Exploration drilling in Aktyubinsk region by company in 2007-2018 (thousand meters).....	289
Figure 12-34 Producing wells stock in Aktyubinsk region by company in 2007-2018	290
Figure 12-35 Workovers in Aktyubinsk region by company in 2007-2018 (jobs).....	290
Figure 12-36 Coverage of well stock by workovers in Aktyubinsk region by company in 2007-2018 (%).....	291
Figure 12-37 Well servicing in Aktyubinsk region by company in 2007-2018 (jobs)	291
Figure 12-38 Coverage of well stock by well servicing in Aktyubinsk region by largest company in 2007-2018 (%)	292
Figure 12-39 Well bore stimulations in Aktyubinsk region by company and incremental production in 2007-2018 (jobs and thousand tons)	293
Figure 12-40 ALS optimization in Aktyubinsk region by company and incremental production in 2007-2018 (jobs).....	293

Figure 12-41 ALS installations in Aktyubinsk region by company and incremental production in 2007-2018 (jobs and thousand tons)	294
Figure 12-42 Water injection by key company in Aktyubinsk region in 2007-2018 (million cubic meters)	294
Figure 12-43 Water injection rates by largest injectors in Aktyubinsk region in 2007-2018 (cubic meters per ton of crude)	295
Figure 12-44 Onshore drilling rigs in Aktyubinsk by company in 2007-2018	296
Figure 12-45 Apparent onshore drilling rigs footage in Aktyubinsk by key company in 2007-2018 (thousand meters per rig)	296
Figure 12-46 Estimated number of workover and well servicing crews in Aktyubinsk by key company in 2018	297
Figure 12-47 Largest producing companies in Aktyubinsk region (% of regional share)	297
Table 12-48 CNPC-Aktobemunaigas crude and gas production in 2007-2018	299
Figure 12-49 CNPC-Aktobemunaigas monthly production in 2013-2015 (thousand tons a day)	299
Figure 12-50 CNPC-Aktobemunaigas monthly production by fields in 2015 (thousand tons a day)	300
Figure 12-51 CNPC-Aktobemunaigas drilling by field (thousand meters)	301
Table 12-52 CNPC-Aktobemunaigas revenue and net income in 2008-2017 (mln USD)	301
Figure 12-53 CNPC-Aktobemunaigas CAPEX 2007-2017 (million USD)	302
Table 12-54 Kazakhoil-Aktobe crude and gas production in 2007-2018	303
Figure 12-55 Kazakhoil-Aktobe monthly production in 2013-2018 (thousand tons a day)	303
Table 12-56 Kazakhoil-Aktobe revenue and net income in 2008-2017 (thousand USD)	303
Table 12-57 Kazakhturkmunai crude and gas production in 2007-2018	304
Table 12-58 Kazakhturkmunai revenue and net income in 2009-2017 (thousand USD)	305
Table 12-59 KMK-Munai crude and gas production in 2007-2018	306
Table 12-60 KMK Munai revenue and net income in 2009-2017 (million USD)	307
Figure 12-61 KMK Munai CAPEX in 2012-2017 (\$ mln)	307
Table 12-62 KMK-Munai indicative upstream spending by contracts in 2010 (USD and Tenge)	307
Table 12-63 KMK-Munai planned upstream spending by contracts in 2011 (USD and Tenge)	308
Table 12-64 KMK-Munai planned upstream spending by contracts in 2012-2014 (USD and Tenge)	308
Table 12-65 Firma ADA Oil crude and gas production in 2009-2018	309
Figure 12-66 Ada Oil production in 2009-2015 and plan till 2015 (thousand tons)	309
Table 12-67 Ada Oil revenue and net income in 2010-2015 (thousand USD)	309
Table 12-68 Lionsjump crude and gas production in 2007-2018	310
Table 12-69 Lionsjump revenue and net income in 2007-2017 (mln USD)	310
Table 12-70 Lionsjump indicative upstream spending in 2011 (USD and Tenge)	310
Table 12-71 Kaspil Neft TME crude and gas production in 2007-2018	311
Table 12-72 Kaspil Neft TME revenue and net income in 2007-2017 (mln USD)	312
Table 12-73 Kaspil Neft TME indicative upstream spending in 2010 (USD and Tenge)	312
Table 12-74 Kaspil Neft TME projected costs between 2012 and 2015 (USD and Tenge)	312
Table 12-75 Sagiz Petroleum crude and gas production in 2009-2018	313
Table 12-76 Sagiz Petroleum revenue and net income in 2012-2016 (million USD)	313
Table 12-77 JV FIAL crude and gas production in 2009-2015	314
Table 12-82 JV FIAL revenue and net income in 2012-2014 (thousand USD)	314
Table 12-79 JV FIAL indicative upstream spending in 2011 (USD and Tenge)	314
Table 12-80 Aman Munai (Kazkhmys Petroleum) crude production in 2010-2018	315
Table 12-81 Kazkhmys Petroleum in 2008-2010 and Aman Munai in 2012-2014 (thousand USD)	315
Figure 12-82 Aman Munai (Kazkhmys Petroleum) CAPEX in 2011-2013	316
Table 12-83 TetisAralGas crude and gas production in 2009-2015	317
Table 12-84 TetisAralGas indicative upstream spending in 2011 (USD and Tenge)	318
Table 12-85 TetisAralGas revenue in 2010-2017 (mln USD)	318
Figure 12-86 TetisAral investment obligation by field in 2011-2013 (thousand USD)	318
Map 13-1 Key fields location in Kyzylorda region	319
Figure 13-2 Oilfield Services Market size in Kyzylorda in 2007-2018 (million USD)	320
Table 13-3 Estimated spending of largest OFS customers in Aktyubinsk in 2007-2018 (million USD)	320
Figure 13-4 Rig mobilization and rig-up in Kyzylorda in 2007-2018 (million USD)	321
Figure 13-5 Rig mobilization and rig-up in Kyzylorda in 2007-2018 (million USD)	321
Figure 13-6 Apparent average footage in development and exploratory drilling in Kyzylorda in 2007-2018 (meters)	322
Figure 13-7 Drilling market in development, exploration and sidetracking in Kyzylorda in 2007-2018 (million USD)	322
Figure 13-8 Drilling fluids segment in development, exploration and sidetracking in Kyzylorda in 2007-2018 (million USD)	323
Figure 13-9 Drilling bits segment in development, exploration and sidetracking in Kyzylorda in 2007-2018 (million USD)	323
Figure 13-10 Turbines and their servicing segment in Kyzylorda in 2007-2018 (million USD)	323
Figure 13-11 Wireline segment in Kyzylorda in 2007-2018 (million USD)	324
Figure 13-12 Logging open hole sub-segment in Kyzylorda in 2007-2018 (million USD)	324
Figure 13-13 Logging cased hole sub-segment in Kyzylorda in 2007-2018 (million USD)	324
Figure 13-14 Perforation sub-segment in 2007-2018 (million USD)	325
Figure 13-15 MWD/LWD segment in Kyzylorda in 2007-2018 (million USD)	325
Figure 13-16 Pressure pumping segment in Kyzylorda in 2007-2018 (million USD)	325
Figure 13-17 Cementing sub-segment in Kyzylorda in 2007-2018 (million USD)	326

Figure 13-18 Casing and completion costs in Kyzylorda in 2007-2018 (million USD).....	326
Figure 13-19 Workover and servicing segment in Kyzylorda in 2007-2018 (million USD)	327
Figure 13-20 Crude production in Kyzylorda region by company in 2007-2018 (thousand tons).....	328
Figure 13-21 Number of licensing blocks by production level in 2015 and 2018 in Kyzylorda (thousand tons average in a group in boxes)	329
Figure 13-22 Incremental crude production in Kyzylorda region by company from 2007 to 2014 in 2015 to 2014 (thousand tons)	329
Figure 13-23 Incremental crude production in Kyzylorda region by company 2016-2018 (thousand tons)	330
Figure 13-24 Gas production in Kyzylorda region by company in 2007-2018 (million cubic meters)	330
Figure 13-25 Gas factor in Kyzylorda region by company in 2007-2018 (thousand cubic meters per ton).....	331
Table 13-26 Well stock in Kyzylorda region in 2007-2018 (wells by type)	331
Figure 13-27 Liquids total production by a type of lift in Kyzylorda in 2013-2016 (mln tons)	332
Figure 13-28 Crude and condensate production by a type of lift in Kyzylorda in 2013-2016 (mln tons).....	332
Figure 13-29 Liquids total production by a type of lift in Kyzylorda in 2013-2016 (tons a day per well)	332
Figure 13-30 Crude production by a type of lift in Kyzylorda in 2013-2016 (tons a day per well)	333
Figure 13-31 Water cut by a type of lift in Kyzylorda in 2013-2016 (% of water).....	333
Figure 13-32 Development drilling in Kyzylorda region by company in 2007-2018 (thousand meters)	334
Figure 13-33 Exploration drilling in Kyzylorda region by company in 2007-2018 (thousand meters).....	335
Figure 13-34 Producing wells in Kyzylorda region by large company in 2007-2018	335
Figure 13-35 Workovers in Kyzylorda region by company in 2007-2018 (jobs)	336
Figure 13-36 Coverage of well stock by workovers in Kyzylorda region by company in 2007-2018 (%).....	336
Figure 13-37 Well servicing in Kyzylorda region by company in 2007-2018 (jobs)	337
Figure 13-38 Coverage of well stock by well servicing in Kyzylorda region by largest company in 2007-2018 (%)	337
Figure 13-39 Well bore stimulations in Kyzylorda region by company and incremental production in 2007-2018 (jobs and thousand tons)	338
Figure 13-40 ALS optimization in Kyzylorda region by company and incremental production in 2007-2018 (jobs).....	339
Figure 13-41 ALS installations in Kyzylorda region by company and incremental production in 2007-2018 (jobs and thousand tons)	339
Figure 13-42 Water injection by key company in Kyzylorda region in 2007-2018 (million cubic meters).....	340
Figure 13-43 Water injection rates by largest injectors in Kyzylorda region in 2007-2018 (cubic meters per ton of crude)	340
Figure 13-44 Onshore drilling rigs in Kyzylorda by company in 2007-2018 (rigs)	341
Figure 13-45 Apparent onshore drilling rigs footage in Kyzylorda by key company in 2007-2018 (thousand meters per rig)	341
Figure 13-46 Number of workover and well servicing crews in Kyzylorda by key company in 2018	342
Figure 13-47 Largest producing companies in Kyzylorda region (% of regional share).....	342
Figure 13-48 PKI actual and planned production in 2013-2018 and CAPEX (mln tons and million USD)	343
Table 13-49 PetroKazakhstan Inc revenue and CAPEX in 2010- 2015 (\$ mln)	343
Table 13-50 Petro Kazakhstan Kumkol Resources crude and gas production in 2007-2018.....	344
Table 13-51 Petro Kazakhstan Kumkol Resources crude production by field in 2015 and 2018 (tons a day).....	345
Table 13-52 Petro Kazakhstan Kumkol Resources revenue and net income in 2007-2017 (million USD).....	346
Table 13-53 Kazgermunai crude production in 2007-2018	347
Figure 13-54 Kazgermunai crude production and CAPEX in 2007-2018 (thousand tons and \$ mln right hand scale)	347
Table 13-55 Kazgermunai crude disposition in 2008 – 2009 and 2014-2017 (thousand tons)	348
Table 13-56 Kazgermunai revenue, CAPEX in 2008-2017 (\$ mln)	348
Table 13-57 Turgai Petroleum reserves in 2005-2009	348
Table 13-58 Turgai Petroleum crude production in 2007-2018	349
Table 13-59 Turgai Petroleum revenue and net income in 2007-2017 (thousand USD).....	349
Table 13-60 Kolzhan crude and gas production in 2009-2018	350
Table 13-61 Kolzhan revenue and net income in 2012-2014 (mln USD).....	350
Table 13-62 Kolzhan indicative upstream spending in 2010 (USD and Tenge)	351
Table 13-63 Kolzhan spending by licenses in six quarters ending 2nd quarter 2011 (\$ mln).....	351
Table 13-64 Kuatamlonmunai crude and gas production in 2007-2018	352
Table 13-65 Kuatamlonmunai revenue and net income in 2007-2017 (mln USD).....	352
Figure 13-66 Kuatamlonmunai CAPEX program for 2014-2024	352
Table 13-67 Sauts-Oil crude and gas production in 2007-2018	353
Figure 13-68 Sauts-Oil crude production by field in 2015 and 2018 (tons a day)	354
Table 13-69 Sauts-Oil revenue and net income in 2007-2017 (mln USD)	354
Table 13-70 Sauts-Oil indicative upstream spending by contracts in 2010 (USD and Tenge)	354
Table 13-71 Sauts-Oil planned upstream spending by contracts in 2011 (USD and Tenge)	355
Table 13-72 Sauts-Oil planned upstream spending by contracts in 2012-2013 (USD and Tenge)	355
Table 13-73 Sauts-Oil planned upstream spending program in 2013-2015 (USD).....	355
Table 13-74 JS NC KOR number of reservoirs and wells in reservoir in the beginning of 2011.....	356
Table 13-75 JS NC KOR crude and gas production in 2007-2018	356
Figure 13-76 JS Oil Company KOR drilling and crude production in 2007-2018.....	356
Table 13-77 KOR revenue and net income in 2012-2017 (mln USD).....	356

Figure 13-78 JS Oil Company KOR contractual obligations in 2013 for 2014-2028 (\$ mln).....	357
Table 13-80 NC KOR indicative upstream spending in 2011 (USD and Tenge).....	357
Figure 14-1 Amangeldy condensate and natgas production in 2007-2018 (thousand tons and million cubic meters)	358
Figure 14-2 Amangeldy development and exploration footage in 2007-2018 (meters).....	359
Figure 14-3 Oilfield Services Market size in the South and other regions of Kazakhstan in 2007-2018 (million USD).....	359
Table 14-4 Tarbagatai Munai crude and gas production in 2013-2018	360
Table 14-5 Tarbagatai Munai revenue and net income in 2007-2016 (mln USD)	360
Table 15-1 Drilling footage of drilling companies in Kazakhstan in 2007-2018 (thousand meters)	362
Figure 15-2 Estimated market shares of competitors in Kazakhstan OFS market (% of total)	363
Figure 15-3 Revenues of AO Kazpetrodrilling in 2009-2017 (\$ million and KZT bln)	364
Figure 15-4 Revenues, COGS and net income of AO Kazpetrodrilling subsidiaries in 2011- 2017 (\$ million)	364
Figure 15-5 AO Kazpetrodrilling activity in 2011- 2018 (thousand meters, wells and jobs).....	365
Figure 15-6 AO Kazpetrodrilling capacities 2011- 2013 (units, thousand meters and jobs).....	365
Table 15-7 KazPetroDrilling rig fleet in 2011	365
Table 15-8 KazPetroDrilling revenue by type of activity in 2010-2013 and 2015-2017 (\$ thousands)	366
Table 15-9 KazPetroDrilling activity and apparent revenue per job in 2010-2013 (\$ thousands).....	366
Table 15-10 Key Capacities of MHI.....	367
Figure 15-11 MHI (KMG-Burenie) drilling footage by key clients in 2007-2018 (thousand meters)	367
Table 15-12 Astra Star key capacities.....	368
Figure 15-13 Apparent drilling by Astra Star Limited in 2008-2018 (thousand meters)	368
Figure 15-14 Revenue of OFS segment in NC KMG in 2015-2017 (bln KZT).....	369
Table 15-15 Key Capacities of OSC.....	370
Figure 15-16 Apparent drilling footage of OSC in 2007-2018 (thousand meters).....	370
Figure 15-17 Schlumberger revenue by geo-region breakdown in 2007-2018 (million USD).....	371
Figure 15-18 Halliburton oilfield revenues by regions in 2007-2018 (million USD)	373
Figure 15-19 GE Baker Hughes regional revenues globally in 2007-2015 (\$ mln).....	374
Figure 15-20 Weatherford revenues by region in 2007-2018 (\$ mln).....	376
Table 15-21 Company GIS (Weatherford) revenue in 2008-2011 (thousand USD).....	377
Table 15-22 Parker Drilling rigs in Kazakhstan	378
Figure 15-23 Parker Drilling CIS revenues in 2008-2011* (USD millions).....	379
Figure 15-24 Nabors revenue from international operations and total in 2013-2018 (\$ mln)	380
Table 15-25 Nabors rigs in Kazakhstan prior 2015	380
Figure 15-26 Nabors drilling as reported by oil companies in Kazakhstan in 2007-2018 (thousand meters)	381
Figure 15-27 Saipem global revenues in 2009-2018 (million EURO).....	382
Figure 15-28 Saipem revenues from NCOC (Kashagan) in 2011-2014 (EURO mln).....	383
Table 15-29 Key Capacities of Saipem.....	383
Figure 15-30 Saipem drilling footage by key clients in 2007-2016 (thousand meters)	384
Table 15-15 Key Capacities of Saipar Drilling	385
Figure 15-32 Saipar drilling footage in 2007-2017 (thousand meters)	385
Figure 15-33 C.A.T. Oil revenues from key customers in 2005-2017 (EUR millions).....	386
Figure 15-34 Condensed income statement of C.A.T. Oil in 2005-2017 in million EURO.....	387
Figure 15-35 Key capacities of C.A.T. Oil in 2005-2017 in fracturing fleets/sidetracking rigs	387
Figure 15-36 C.A.T. Oil number of jobs in 2007-2017	388
Figure 15-37 C.A.T. Oil number of jobs and revenue per job in 2012-2017 by the segments (drilling and well service).....	388
Figure 15-38 C.A.T. Oil segment revenue in 2014-2017 (millions EUR).....	389
Figure 15-39 Global revenue of Trican 2006-2015 (millions CAD)	390
Table 15-40 Capacities of TRICAN in CIS in 2004-2014	391
Figure 15-41 Revenue per type of job by Trican in 20 quarters in 2008-2014 (CAD millions).....	391
Figure 15-42 Revenue per job by TRICAN in 8 quarters of 2008-2009 and in 2010-2014 (thousand CAD and USD)	392
Figure 15-43 Condensed income statement of TRICAN's International segment for 2005-2014* (mln CAD)	392
Table 15-44 Condensed income statement of TRICAN in CIS for 2005-2014 (CAD translated into mln USD).....	393
Table 15-45 CNPC oilfield services capacities in 2010-2017	393
Figure 15-46 CNPC service divisions productivity in 2015-2017	394
Figure 15-47 Great Wall and XiBu drilling footage in 2007-2018 (thousand meters)	394
Table 15-48 Key Capacities of Great Wall Drilling	396
Table 15-49 Rig type of Great Wall Drilling	396
Figure 15-50 Great Wall drilling footage by key clients in 2007-2018 (thousand meters).....	396
Table 15-51 XiBu drilling rigs (2010).....	397
Figure 15-52 CNPC XiBu footage by key clients in 2007-2018 (thousand meters).....	398
Figure 15-53 Vostok Neft I Servisnoe Obsluzhivanie footage by key clients in 2007-2018 (thousand meters)	398
Table 15-54 Aktobemunaiservice key capacities	399
Table 15-55 Key Capacities of Sun Drilling	399
Figure 15-56 Apparent drilling footage of Sun Drilling in 2007-2015 (thousand meters)	400
Table 15-57 Sinopec drilling subsidiaries rigs.....	400

Figure 15-58 Apparent drilling footage of Sinopec subsidiaries in 2007-2018 (thousand meters)	401
Table 15-59 Batys-Munai key capacities	402
Figure 15-60 Apparent drilling by Batys-Munai by customer in 2007-2018 (thousand meters)	403
Figure 15-61 Workover jobs and wells completed by Batys-Munai in 2003-2014 (jobs and wells)	403
Table 15-62 Batys-Munai clients and workovers by client as reported by the company in 2003-2014 (jobs)	403
Table 15-63 Capacities of Neftserviceholding	404
Figure 15-64 Neftserviceholding revenue breakdown by activity in 2011	405
Figure 15-65 Neftserviceholding revenue breakdown by regions in 2011	405
Figure 15-66 AO OMG drilling footage in 2007-2018 (thousand meters)	406
Figure 15-67 Drilling footage reported by AO OMG in 2008-2018 (thousand meters)	406
Figure 15-68 Ontustic Munaigas drilling footage in 2005-2011 (footage in thousand meters per quarter)	407
Figure 15-69 AO OntusticMunaigas well and sidetrack completions in 2008-2017	407
Table 15-70 Drilling rigs fleet of Ontustic Munaigas	408
Table 15-71 Ontustic Munaigas revenue and income in 2007-2016 (\$ mln)	408
Table 15-72 Yugovostochnaya Servisnaya Gruppa Capacities	408
Figure 15-73 Yugo-Vostochnaya Servisnaya Gruppa workover and servicing jobs in 2011-2014	409
Figure 15-74 Yugo-Vostochnaya Servisnaya Gruppa well servicing jobs by regions in 2011-2014	409
Figure 15-75 Yugo-Vostochnaya Servisnaya Gruppa workover jobs by regions in 2011-2014	409
Figure 15-76 Yugo-Vostochnaya Servisnaya Gruppa workover jobs by regions in 2008-2014	410
Table 15-77 Geophysycal Company investments in 2009-2014 (\$ mln)	410
Table 15-78 Key Capacities Of NeftTekhService	411
Table 15-79 Detailed list of equipment NeftTekhService	411
Figure 15-80 Apparent drilling footage of NeftTekhService in 2007-2015 (thousand meters)	412
Table 15-81 NeftTekhService clients, types of wells by the client and drilling rates in days per well	412
Table 15-82 NeftTekhService mobile rig crew structure	413
Table 15-83 BKE key capacities	413
Figure 15-84 Apparent drilling by BKE Kazakhstan for Kazakhoil-Aktobe in 2008-2012 (thousand meters)	413
Table 15-85 Azimuth Energy Services revenue and net income in 2008- 2017 (mln USD)	416
Table 15-86 Caspian Services Inc. revenue and net income in 2010- 2015 (thousand USD)	418
Table 15-87 Zhanros key capacities	419
Figure 15-88 Apparent drilling by Zhanros by clients in 2008-2018 (thousand meters)	419
Figure 15-89 Wells completed by Zhanros in 2006-2011	420
Table 15-90 Tulpar Munai Services key capacities	420
Figure 15-91 Apparent drilling by Tulpar Munai Services by clients in 2007-2018 (thousand meters)	420
Table 15-92 Tulpar Munai Services completed wells in 2010-2017	421
Figure 15-93 Workover-servicing jobs by Tulpar Munai Services in 2010-2017	421
Table 15-94 Tulpar Munai Services revenue and COGS in 2015-2016 (thousand USD)	421
Table 15-95 Smart Oil key capacities	422
Figure 15-96 Apparent drilling by Smart Oil by clients in 2007-2014 (thousand meters)	422
Table 15-97 Smart Oil drilling and rigs fleet	423
Table 15-98 OGEC key capacities	423
Figure 15-99 Apparent drilling by OGEC by clients in 2007-2015 (thousand meters)	424
Table 15-100 PM Lucas key capacities	425
Figure 15-101 Apparent drilling by PM Lucas by clients in 2007-2018 (thousand meters)	425
Table 15-102 Wells drilled by PM Lucas in 2014 for PKKR	426
Table 15-103 Wells drilled by PM Lucas in 2013 for PKKR	426
Figure 15-104 Apparent drilling by Uralskneftegasgeologia in 2007-2018 (thousand meters)	427
Table 15-105 Uralskneftegasgeologia revenue and net income in 2007- 2017 (mln USD)	428
Figure 15-106 Apparent drilling by CATkaz in 2008-2015 (thousand meters)	429
Figure 15-107 Apparent drilling by Kezbi in 2007-2015 (thousand meters)	430
Table 15-108 Akpan LLP key capacities	431
Figure 15-109 Apparent drilling by Akpan in 2012-2018 (thousand meters)	432
Table 15-110 MAIX key capacities	432
Table 15-111 KRUZ revenue and net income in 2009-2010 (thousand USD)	433
Figure 15-112 Apparent drilling by Mangistaugeologia in 2007-2014 (thousand meters)	435
Table 15-113 Mangistaugeologia revenue in 2009-2012 (thousand USD)	435
Figure 15-114 Apparent drilling by Syrdariamunai in 2007-2015 (thousand meters)	435
Table 15-115 Syrdariamunai revenue in 2007-2011 (thousand USD)	436
Table 15-116 Kazburgaz physical activity by key client in 2009-2011 and in 2013-2014	437
Table 15-117 Kazburgaz revenue in 2008-2017 (mln USD)	437
Figure 15-118 Kazburgaz revenue by type of service in 2011-2017 (\$ mln)	437
Figure 15-119 Equipment Serives Ltd wells drilled in 2011-2017	438
Table 15-120 Petrofac global revenue and net income in 2006-2018 (\$ bln)	439
Table 15-121 Chicago Bridge & Iron Company global revenue and net income in 2008-2017 (USD millions)	441

Table 15-122 Aker Solutions global revenue and net income in 2008-2015 (NOK millions).....	441
Table 15-123 Worley Parsons global revenue and net income in 2008-2017 (AUD millions).....	441