

In The Name Of God



National Iranian Oil Refining & Distribution Company (NIORDC)

Presented by: A.Kazemi

(Deputy Petroleum minister & NIORDC President)



Corporate Planning Management

Jan 2017



Company Profile

NIORDC, the state owned oil company of IRIP is a downstream integrated company.

We have operation in entire crude oil transport , storage, refining , product distribution - storage, and service stations.



Company Profile

9 Refineries

Pipelines { **Crude oil : 3861 Km**
Products : 9307 Km

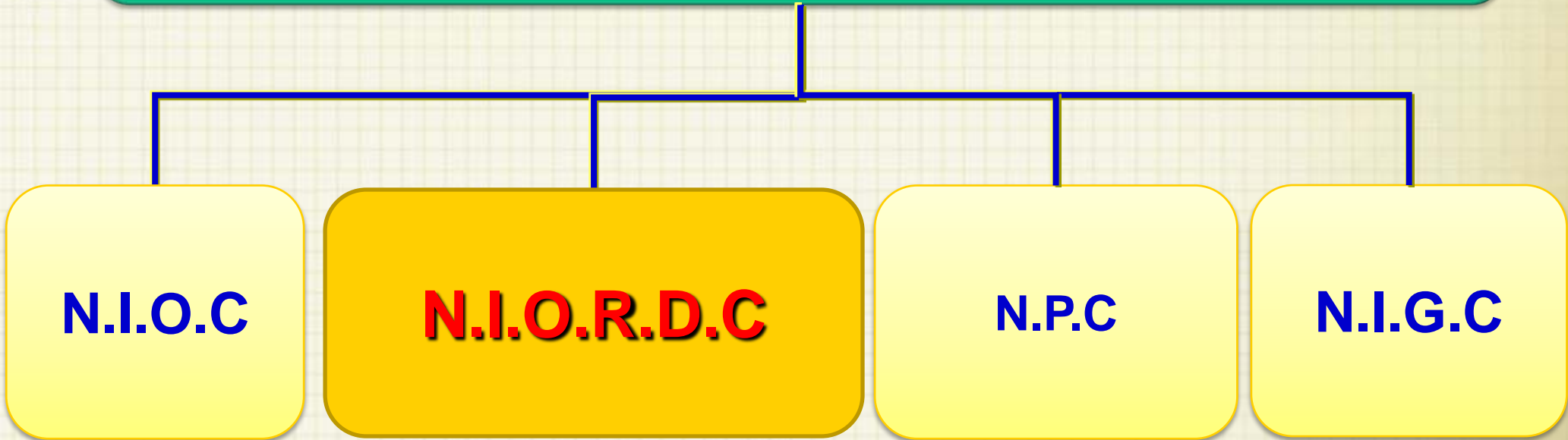
Service stations Storage: 3297

CNG Refueling Stations : 2229

We are among the 4 top companies that have the highest numbers of CNG refueling stations.



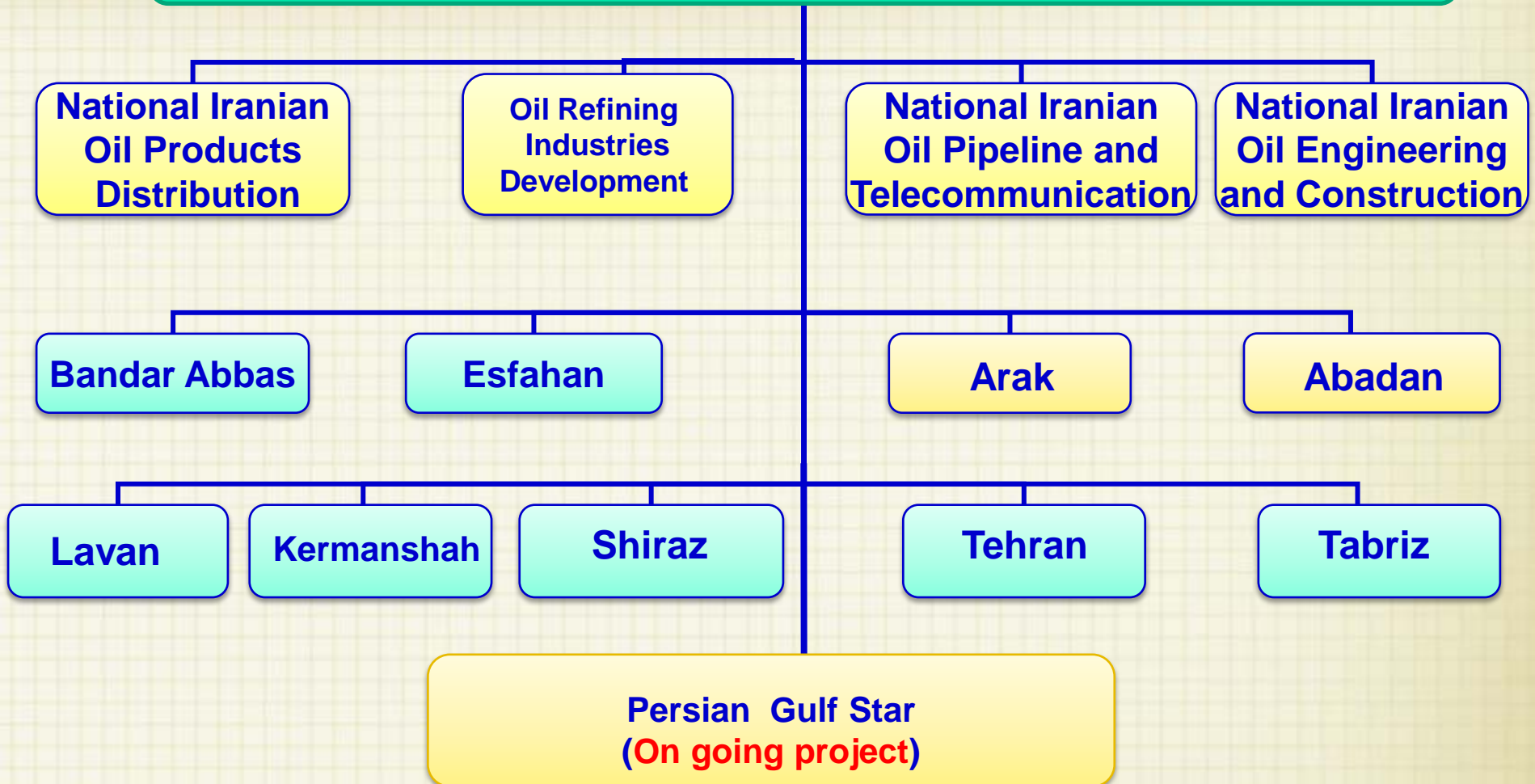
Ministry of Petroleum





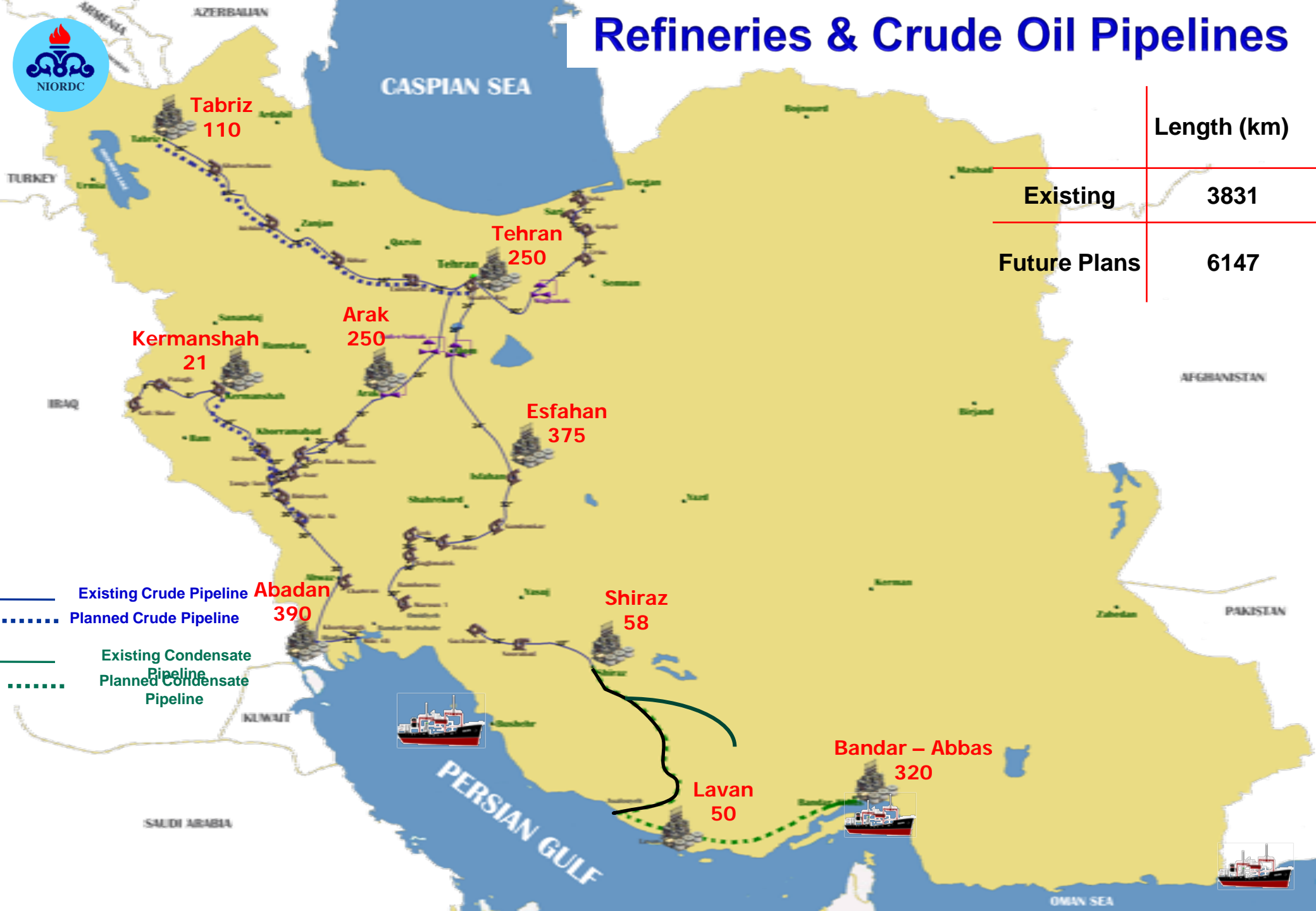
Subsidiary Companies

National Iranian Oil Refining & Distribution Company





Refineries & Crude Oil Pipelines



	Length (km)
Existing	3831
Future Plans	6147

- Existing Crude Pipeline
- Planned Crude Pipeline
- Existing Condensate Pipeline
- Planned Condensate Pipeline





Products Pipeline



Length (km)

Existing

9307

Future Plans

11171

Existing Product Pipeline
Planned Product Pipeline

SAUDI ARABIA

KUWAIT

PERSIAN GULF

OMAN SEA

AFGHANISTAN

PAKISTAN



Existing Status

Refinery Capacities

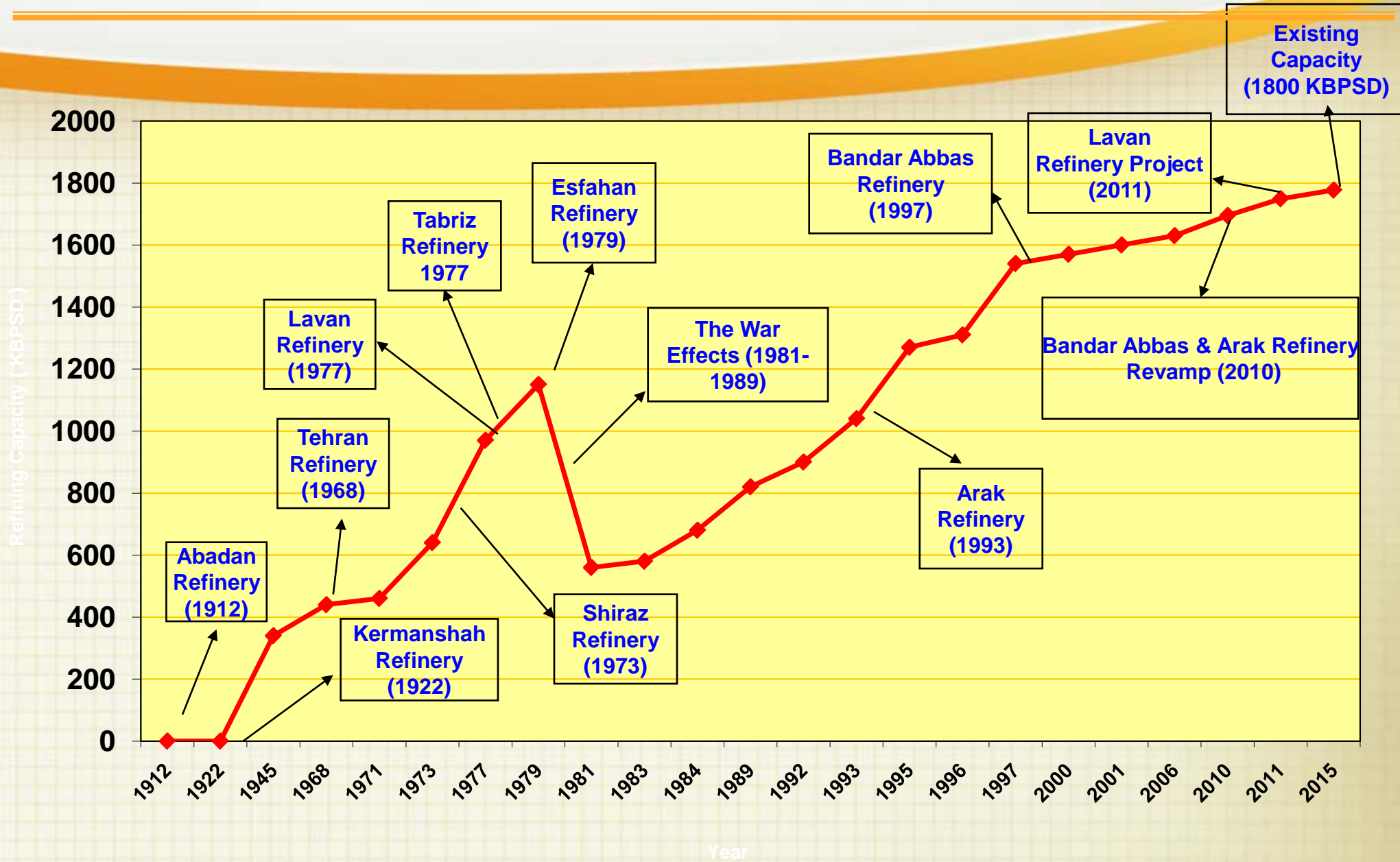




Oil Refining Companies

Refining Companies		Abadan	Bandar Abbas	Esfahan	Imam Khomeini Shazand	Kermans hah	Lavan	Tehran	Shiraz	Tabriz
Start up Date		1912	1997	1979	1993	1971	1976	1969	1973	1978
Capacity (bpd)		390,000	320,000	375,000	250,000	21,000	50,000	250,000	58,000	110,000
Feedstock	API	25.78	30.21	33.00	31.42	37.48	33.96	32.17	28.50	32.24
	S	1.52	1.90	1.10	1.71	1.47	1.23	1.84	1.30	1.60
Ownership		NIORDC	Private sector	Private sector	NIORDC	Private sector	Private sector	Private sector	Private sector	Private sector

Growth of Refining Capacity



NIORDC



STRATEGY



Future Plan

- **Products Quality Improvement**
- **Bottom Upgrading**
- **New Refineries**
- **New Pipelines**
- **New Depots**



Clean Fuel & Optimization / Upgrading Projects

Clean Fuel Projects

- ✓ Abadan oil refining Company : CCR , Isomerization and gasoil/Kerosene hydrotreating Units
- ✓ Tehran oil refining Company : Isomerization and gasoil/kerosene hydrotreating Units
- ✓ Bandar Abbas oil refining Company : CCR , Isomerization and gasoil hydrotreating Units
- ✓ Tabriz oil refining Company : CCR and Benzene Extraction Units
- ✓ Esfahan oil refining Company : Isomerization and CCR , gasoil/kerosene hydrotreating Units
- ✓ Lavan oil refining Company :CCR , Isomerization and gasoil hydrotreating Units

Residue Upgrading and Optimization

- ✓ Imam Khomeini oil refining Company : Throughput increase , products quality improvement and Residue Conversion
- ✓ Abadan oil refining Company :FCC Complex Plant ,Hydrocarcker, Throughput increase, Expansion and capacity stabilization (including the implementation of storage tanks)
- ✓ Esfahan oil refining Company :Process expansion and optimization , RFCC
- ✓ Lavan oil refining Company : Throughput increase



Products Quality Improvement To EU4

Achieved

All Products

All Products

Diesel, Kero

All Products

Ongoing Project

Ongoing Project Gasoline

➤ Imam Khomeini Shazand

➤ Lavan

➤ Tehran Gasoline **Ongoing Project**

➤ Bandar Abbas

➤ Isfahan All Products

➤ Abadan Diesel, Kero



Bottom Upgeading

➤ Feasibility Study & Finance Negotiation

➤ Bandar Abbas **Chioda, Mitsui & Dailem**


➤ Tehran **JGC, Marubeni, SK**

➤ Tabriz **JX Nippon, SK**


➤ Ongoing Project

➤ Isfahan **Dailem, Mapna, Nargan**

➤ Abadan **ODCC, SEI**



***Abadan Oil Refining Company
(AORC)***





AORC Clean Fuel & Residue Upgrading and Optimization Projects

REFINERY MODERNIZATION PLAN



PHASE-II

- Stabilization Project
- Current Status: Basic Eng by Chinese Consortium

PHASE-IV

- Bottom Upgrading Project
- Current Status: FS by JGC followed by DFS in 2017



Abadan Oil Refining Company(AORC)

Existing Production Units

Atmospheric Distillation, Vacuum Distillation, Visbreaker, LPG Recovery, Alkylation, Isomerization, Fluid Catalytic Cracking (FCC), Catalytic Reformer (CRU), Propylene Recovery, Gasoline Treating, Naphtha Hydrotreater, Sulfur Recovery and related utilities

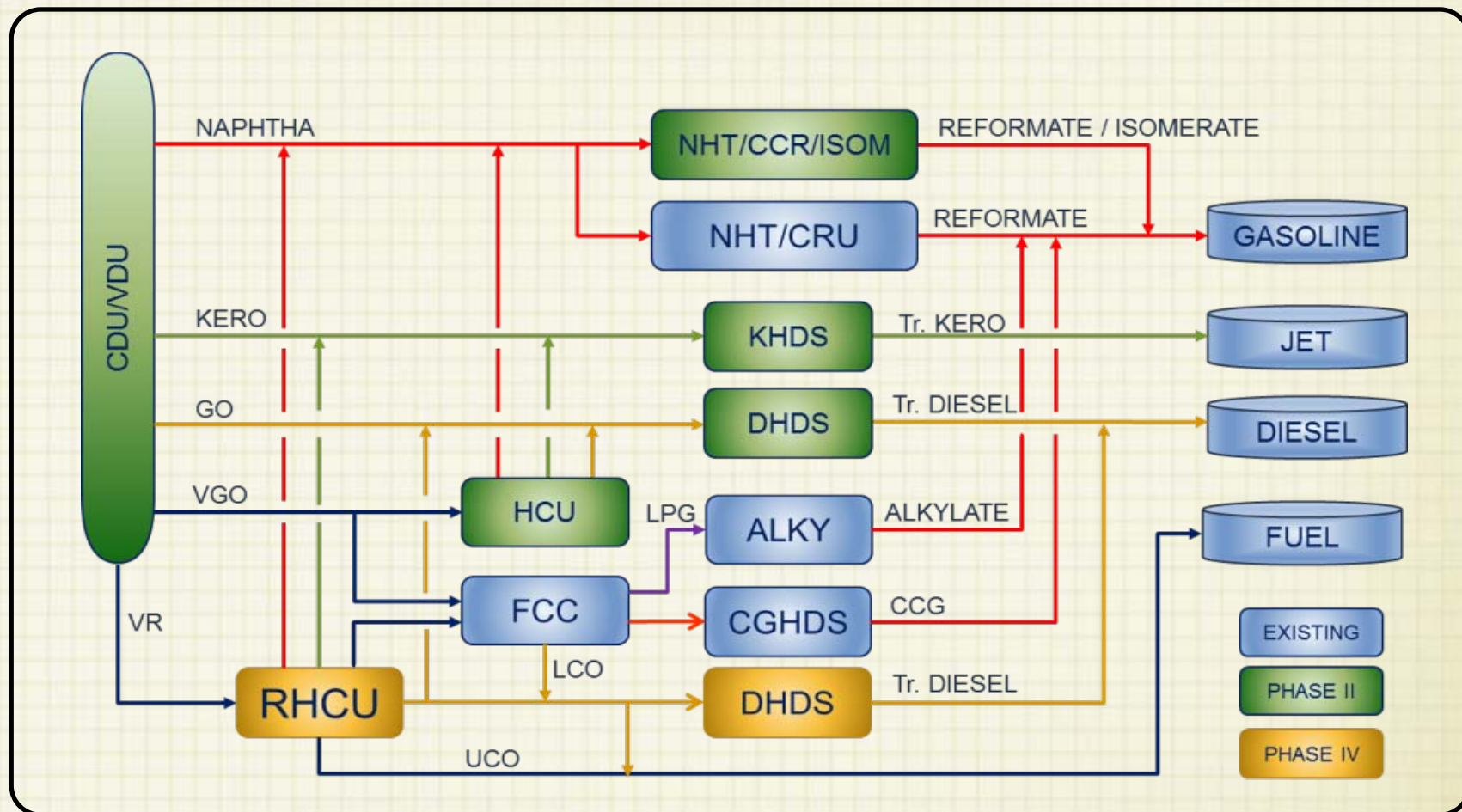
	GROSS MARGIN (\$/bbl)2014-2015	Refinery Capacity (bbl/day) 2014-2015	Nelson Complex Index Design	Nelson Complex Index Actual
ABADAN Refinery	0.7	384000	3.64	3.38



AORC Products Before/after the Projects (EURO 4)

In Future: After Completion All Phases

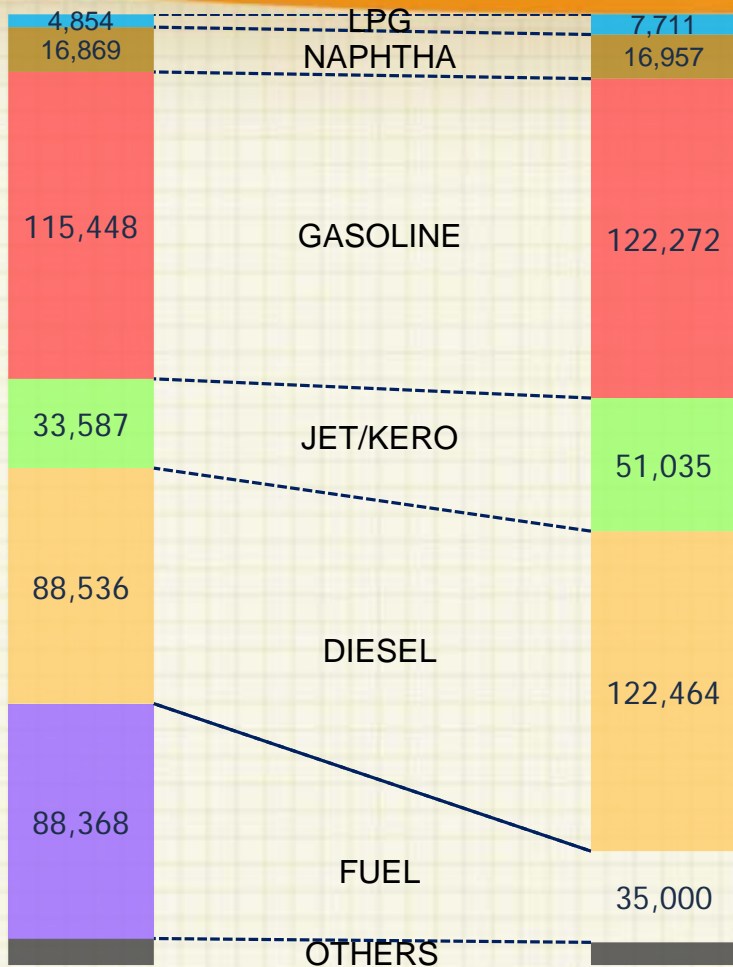
REFINERY CONFIGURATION





AORC Products Before/after the Projects (EURO 4)

In Future: After Completion All Phases



unit in BPSD

PRODUCTIONS

GASOLINE

+ 6%

JET/KERO

+ 52%

DIESEL

+ 38%

FUEL

- 60%

ECONOMICS

Δ MARGIN + 3.6 USD/BBL



Esfahan Oil Refining Company(EORC)





Clean Fuel & Residue Upgrading & Optimization Project

Production Units

a. In service

Unit	Capacity(BBL/day)	License
Naphtha Treating	62000	Axens
CCR	32000	Axens
Isomerization	27000	UOP

b. In Future

Unit	Capacity(BBL/day)
ATM. Distillation	120000
Kero HDS	27000
Gasoil HDS	99370
Hyvahl	81000
RFCC	91290
RFCC Gasoline Treating	51477
LPG	9819
LPG Merox	23728
Propylene Recovery	23728
H2 Plant (Ton/Day)	2*429
SRU(Ton/Day)	650



Esfahan Oil Refining Company(EORC) products Before/after the Project(EURO 5)

In Future

Product	Capacity(bbl/day)		
	Before	Increase/ Decrease	After
Gasoline	73591	11322	84912
LPG	12580	0	12580

Product	Capacity(bbl/day)
	Increase/ Decrease
LPG	16800
Gasoline	80427
Gasoil(10ppm)	114784
Gasoil(>2500ppm)	108627
Kerosene	-34745
Fuel Oil(180cst)	16879
Fuel Oil(280cst)	-88832
Propylene	6998
ATK	23477
Sulphure(t/d)	520



Esfahan Oil Refining Company(EORC)

Existing Production Units

Atmospheric Distillation, Vacuum

Distillation, Visbreaker, Naphtha Hydrotreater, LPG

Recovery, Catalytic Reforming (CRU), Continuous Catalytic Reformer (CCR), Isomax, H2

Production, Isomerization, Sulfur Recovery and related utilities

	GROSS MARGIN (\$/bbl)2014-2015	Refinery Capacity (bbl/day) 2014-2015	Nelson Complex Index Design	Nelson Complex Index Actual
ESFAHAN	1.7	372000	6.95	3.43



Bandar Abbas Oil Refining Company (BAORC)





Clean Fuel Project Production Units

Unit	Capacity(BBL/day)	License
Heavy Naphtha Treating	25000	AXENS
CCR	25000	AXENS
Light Naphtha Treating	16000	AXENS
Isomerization	16000	AXENS
Gasoil HDS	50000	AXENS
Amine Treating	230 T/d	
SWS	500 T/d	
SRP	120 T/d	
Sulfur Solidification	250 T/d	



Bandar Abbas Oil Refining Company (BAORC) Products Before /after the Project (EURO 4)

Product	Capacity(bbl/day)		
	Before	Increase/ Decrease	After
LPG	8177	0	8177
Gasoline	69188	15724	84912
Sulphur (t/d)	130	120	250



Bandar Abbas Oil Refining Company (BAORC)

Production Units (the current project units and existing one)

Atmospheric Distillation, Vacuum

Distillation, Visbreaker, LPG Recovery, Isomerization, Gas Oil

Hydrotreater, Naphtha Hydrotreater, Kerosene

Hydrotreater, H2 Production, Catalytic Reforming

(CRU), Continuous Catalytic Reformer (CCR), Isomax, Sulfur

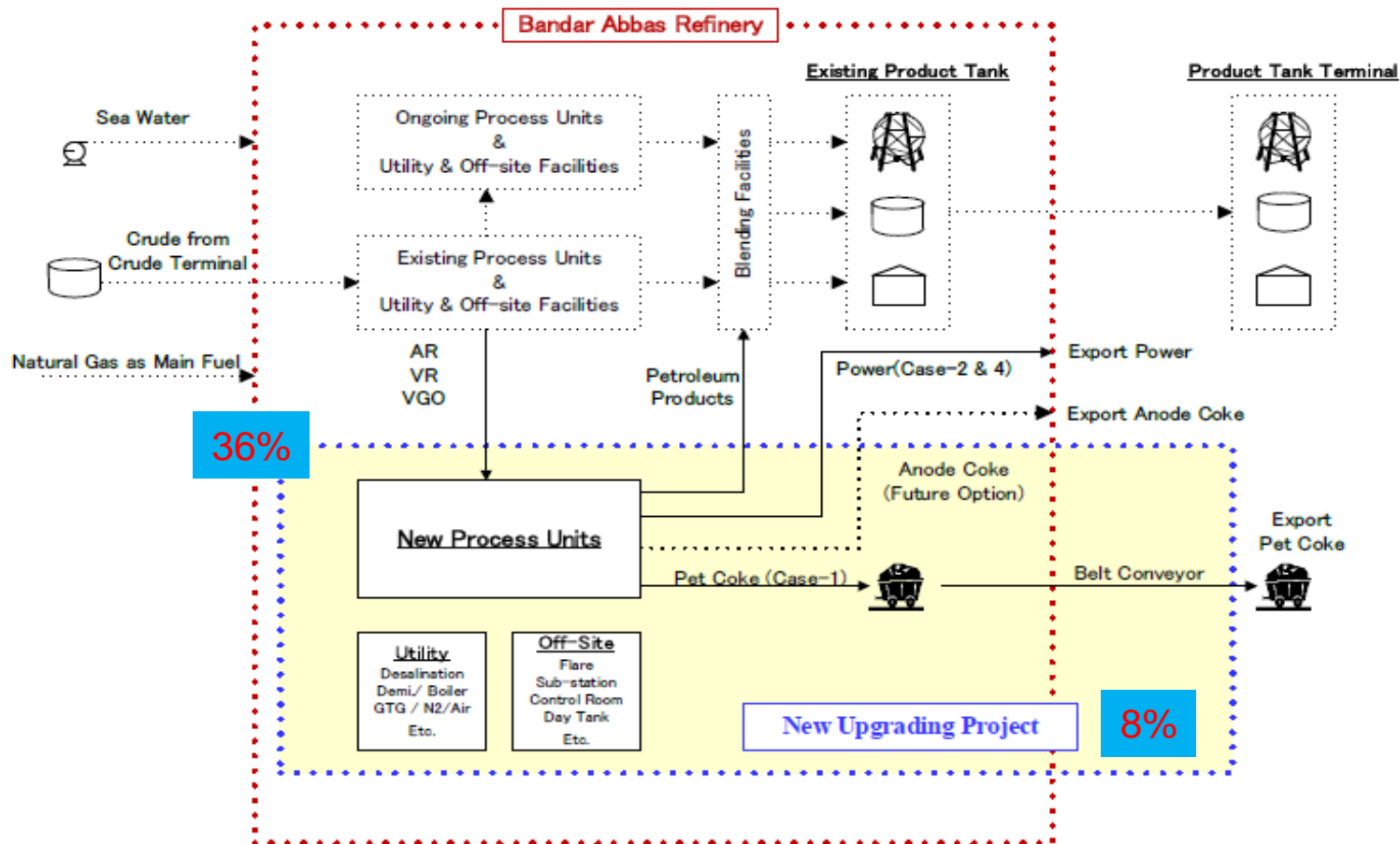
Recovery and related utilities

	GROSS MARGIN (\$/bbl) 2014-2015	Refinery Capacity (bbl/day) 2014-2015	Nelson Complex Index Design	Nelson Complex Index Actual
BANDAR AABAS	1.2	327050	3.97	4.05



Bandar Abbas Oil Refining Company (BAORC)

In Future: After Completion Residue Upgrading



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Current gasoline shifts from **73** kbb/d to **122** kbb/d Recovering sulfur increase from **165** ton/d to **848** ton/d

Tabriz Oil Refining Company(TORC)



Clean Fuel project Production Units

Unit	Capacity(BBL/day)	License
Heavy Naphtha Treating	20000	AXENS
CCR	20000	AXENS
Benzene Extraction	92 T/day	UHDE



Tabriz Oil Refining Company(TORC) products Before /after the Project(EURO 5)

Product	Capacity(bbl/day)		
	Before	Increase/ Decrease	After
Gasoline	14466	5661	20127
Benzene	0	4403	4403



Tabriz Oil Refining Company(TROC)

Existing Production Units

Atmospheric Distillation, Vacuum

Distillation, Visbreaker, LPG Recovery, Naphtha

Hydrotreater, Kerosene Hydrotreater, H2

Production, Catalytic Reforming (CRU), Continuous

Catalytic Cracking(CCR) ,Benzene

Extraction, Isomax, Sulfur Recovery and related units

and utilities

	GROSS MARGIN (\$/bbl)2014- 2015	Refinery Capacity (bbl/day) 2014-2015	Nelson Complex Index Design	Nelson Complex Index Actual
TABRIZ	3.9	110037	6.25	5.65



Tehran Oil Refining Company(TORC)





Tehran Oil Refining company(TORC)

Production Units

Atmospheric Distillation, Vacuum

Distillation, Visbreaker, LPG Recovery, Naphtha

Hydrotreater, Kerosene Hydrotreater, Gas Oil

Hydrotreater, H2 Production, Catalytic Reforming

(CRU), Isomax, Isomerization, Sulfur Recovery and

related utilities

	GROSS MARGIN (\$/bbl)2014- 2015	Refinery Capacity (bbl/day) 2014-2015	Nelson Complex Index Design	Nelson Complex Index Actual
TEHRAN	1.3	247153	6.40	5.27



Tehran Oil Refining company(TORC)

In Future: Improvement and Residue Upgrading Projects

PHASE-1

- CCR Project
- Current Status: Basic Engineering by JGC

PHASE-2

- Bottom Upgrading Project
- Current Status: DFS by JGC

FINANCE ARRANGEMENT



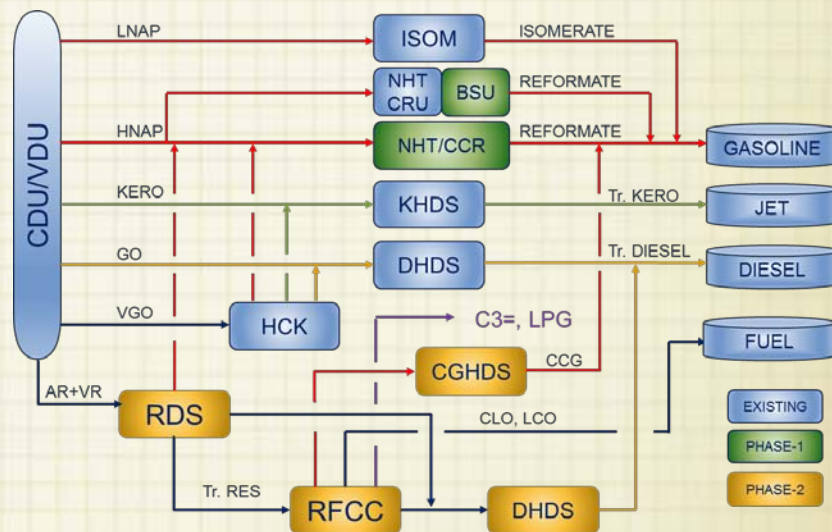
Marubeni

**FINANCE
TASK FORCE**

JGC



REFINERY CONFIGURATION

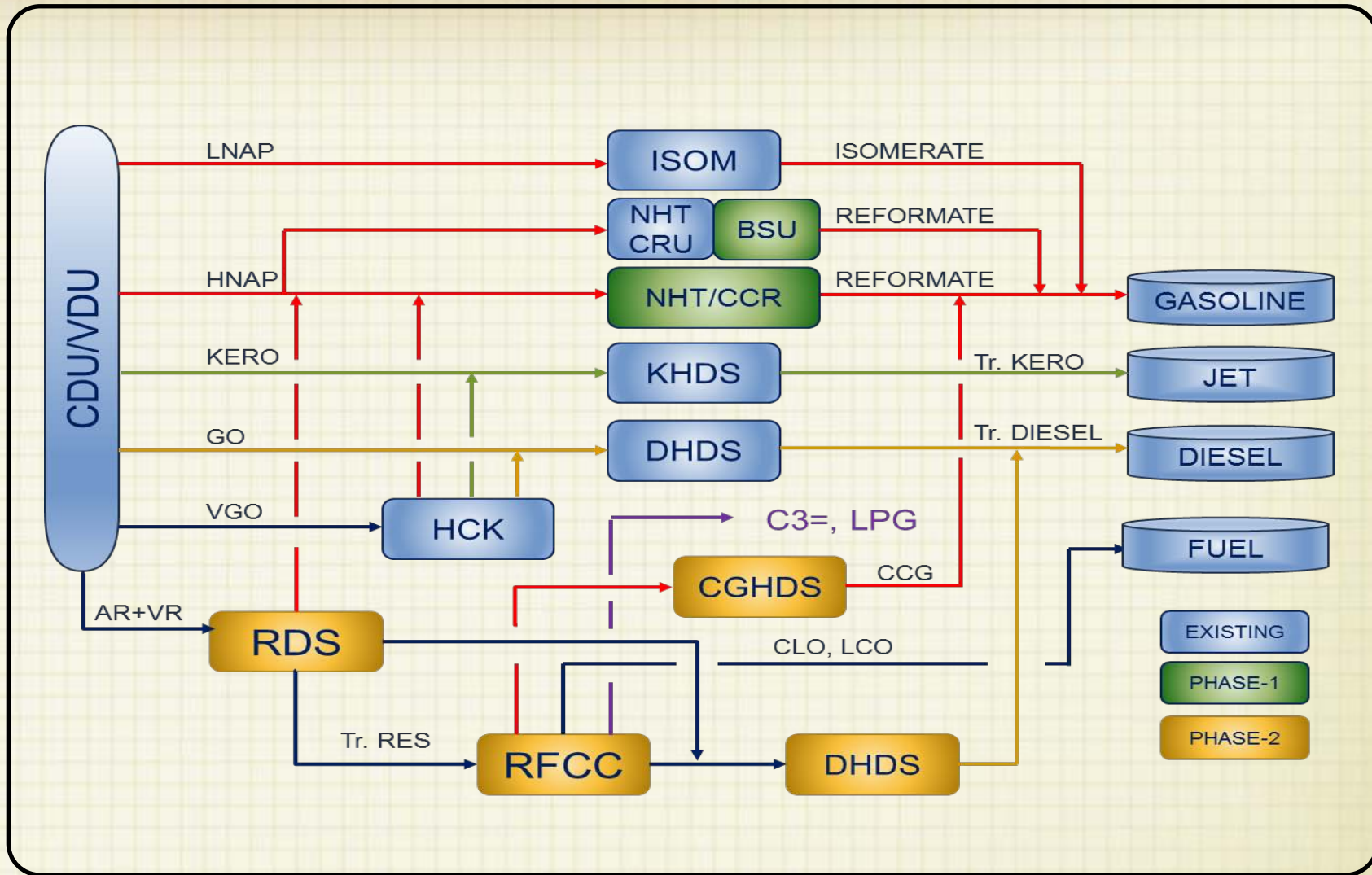




Tehran Oil Refining company(TORC)

In Future: After Completion All Phases

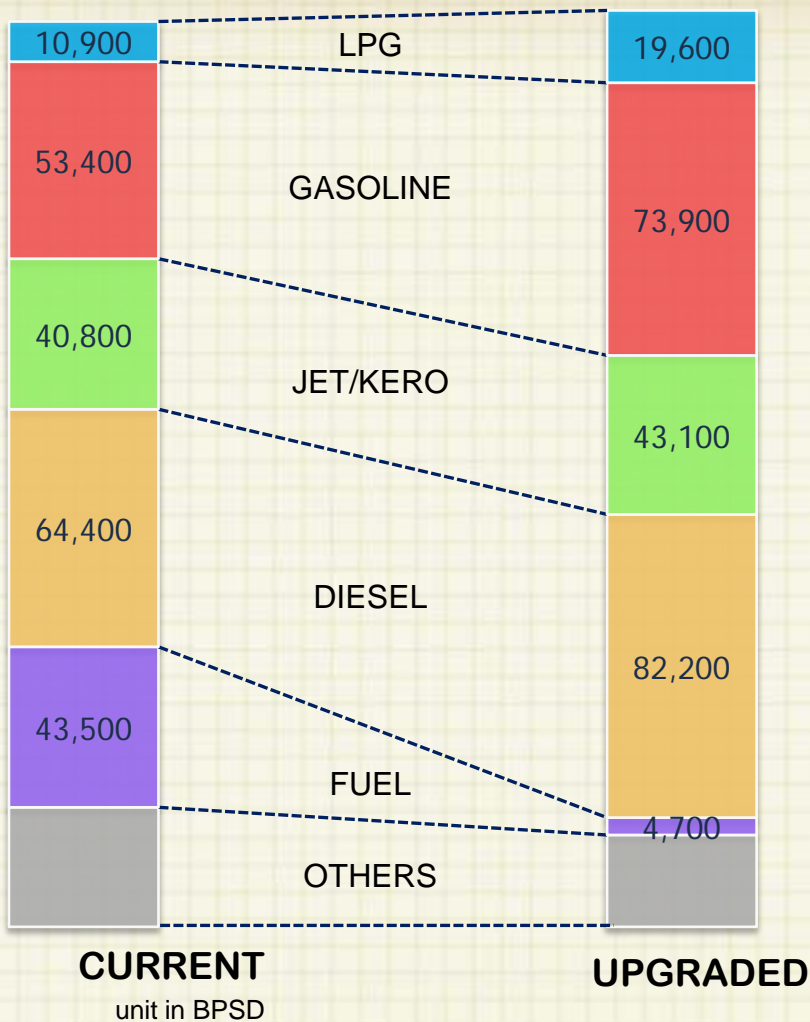
REFINERY CONFIGURATION





Tehran Oil Refining company(TORC)

In Future: After completion All Phases



PRODUCTIONS

GASOLINE

+ 38%

JET/KERO

+ 6%

DIESEL

+ 28%

FUEL

- 89%

ECONOMICS

ΔMARGIN + 4.2 USD/BBL



***Imam Khomeini Oil Refining Company of Shazand
(IMORC)***





Residue Upgrading & Optimization Project

Production Units

Unit	Capacity bbl/day	License
Distillation	80000	Designed by JGC
Naphtha Hydrotreater	33000	Axens
Octanizer	20000	Axens
RFCC	94387	UOP
LPG Merox	28105	UOP
RCD	69180	UOP
Kerosene Hydrotreater	31500	Axens
Gasoil Hydrotreater	53000	Axens
FCC gasoline Treater	50500	Axens
Isomerization	8500	RIPI
H2 Plant	341	
Propylene Recovery Unit	28105	UOP
Sulphur Recovery(t/d)	640	



Imam Khomeini Oil Refining Company of Shazand Products Before/after the Project(EURO 5)

Product	Capacity(bbl/day)		
	Before	Increase/ Decrease	After
LPG	6290	16353	22643
Gasoline	31449	70446	101895
Kerosene	14466	11322	25788
Gas oil	67930	8806	76736
Fuel oil	45287	-22643	22644



Imam Khomeini Oil Refining Company of Shazand (IMORC)

Existing Production Units

Atmospheric Distillation, Vacuum Distillation, Visbreaker, LPG Recovery, Naphtha Hydrotreater, Kerosene Hydrotreater, Continuous Catalytic Reformer (CCR), Isomax, Sulfur Recovery, H₂ Production, Isomerization, Residue Fluid Catalytic Cracking (RFCC), Reduced Crude Desulfurization (RCD), Propylene Recovery and related utilities

	GROSS MARGIN (\$/bbl)2014- 2015	Refinery Capacity (bbl/day) 2014-2015	Nelson Complex Index Design	Nelson Complex Index Actual
ARAK	4	248000	9.38	7.86



Lavan Oil Refining company (LORC)





Clean Fuel & Optimization Project

Production Units

Unit	Capacity(BBL/day)
CDU	25000
VDU	12077
HNHT/CCR	6750
LNHT/ISOM	7400
KHT/GHT	17730
SRP (Sulphur Recovery)	30T/d
Sour Water stripper	416 T/d
Amine Treatment	122 T/d



Lavan Oil Refining company (LORC) products Before /after (EURO 4)

Product	Capacity(bbl/day)		
	Before	Increase/ Decrease	After
LPG	252	1887	2139
Gasoline	6919	11951	18869
Kerosene	0	6289	6289
Gas oil	9435	63	9498
Fuel Oil	9435	63	9498



Lavan Oil Refining company (LORC)

Production Units

Atmospheric Distillation, Vacuum Distillation, LPG Recovery, Naphtha Hydrotreater, Kerosene Hydrotreater, Gas Oil Hydrotreater, Catalytic Reforming (CRU), Isomerization and related utilities

	GROSS MARGIN (\$/bbl)2014- 2015	Refinery Capacity (bbl/day) 2014-2015	Nelson Complex Index Design	Nelson Complex Index Actual
LAVAN	0	59104	5.72	4.83



Future Status

New Refineries





Siraf Refineries Park

- ❑ Located in Asaloyeh–Bushehr Prov.
- ❑ The biggest condensate refinery in world
- ❑ 8 refineries ($8 \times 60000 = 480000$ BPSD)

Products:

LPG	25000	BPSD
Treated Naphtha	276000	BPSD
Jet Fuel	30000	BPSD
Gas Oil	148000	BPSD

Total product capacity

Estimated Investment (Million \$): 8×600

Providing consortium with Iranian companies

Pipeline and Oil Terminal Projects

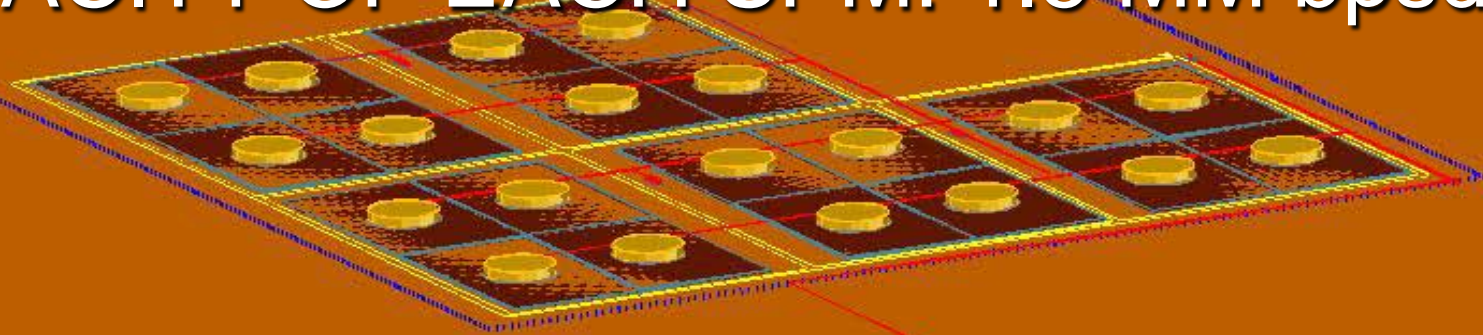


Jask Oil Terminal Project

- **JASK, located in Hormozgan Province of Iran in Oman sea Coast.**
- **The Project is on the basis of financing, construction, operation and ownership transfer (BOT).**
- **Basic Design is prepared and the review is under implementation**

Jask Oil Terminal Project

STORAGE CAPACITY: 10 MM BBLs
CAPACITY OF EACH SPM: 1.5 MM bpsd



CASE 1

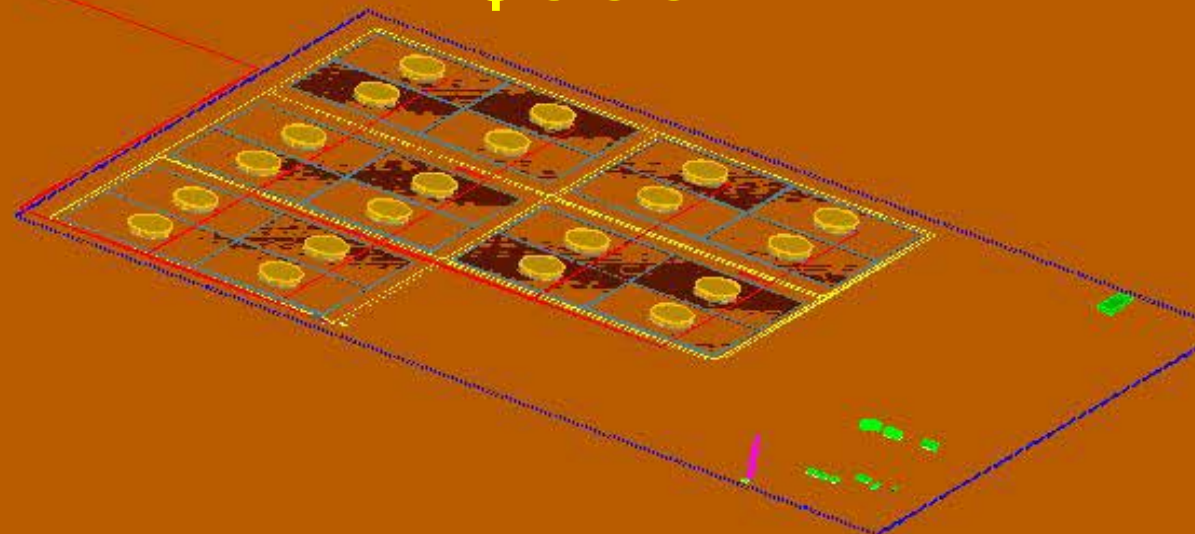


Jask Oil Terminal Project

CASE 2

Capital Cost

\$500 MM





Cumulative Project Investment in Iranian Refineries through 2010-2014

✓ Clean Fuels	2 Billion Dollars
✓ Upgrading	3 Billion Dollars
✓ New Refineries	5 Billion Dollars



Change of Products Slate as a Result of Implemented Projects

Unit : bpd

Modified						Base Case					
Fuel Oil	Gas Oil	Jet/Ker	Gasoline	LPG	Crude	Fuel Oil	Gas Oil	Jet/Ker	Gasoline	LPG	Crude
398000	627000	67000	454000	58000	1827000	484000	562000	141000	283000	53000	1729000



THANK YOU