



30th JCCP International Symposium
(25th - 26th January 2012)

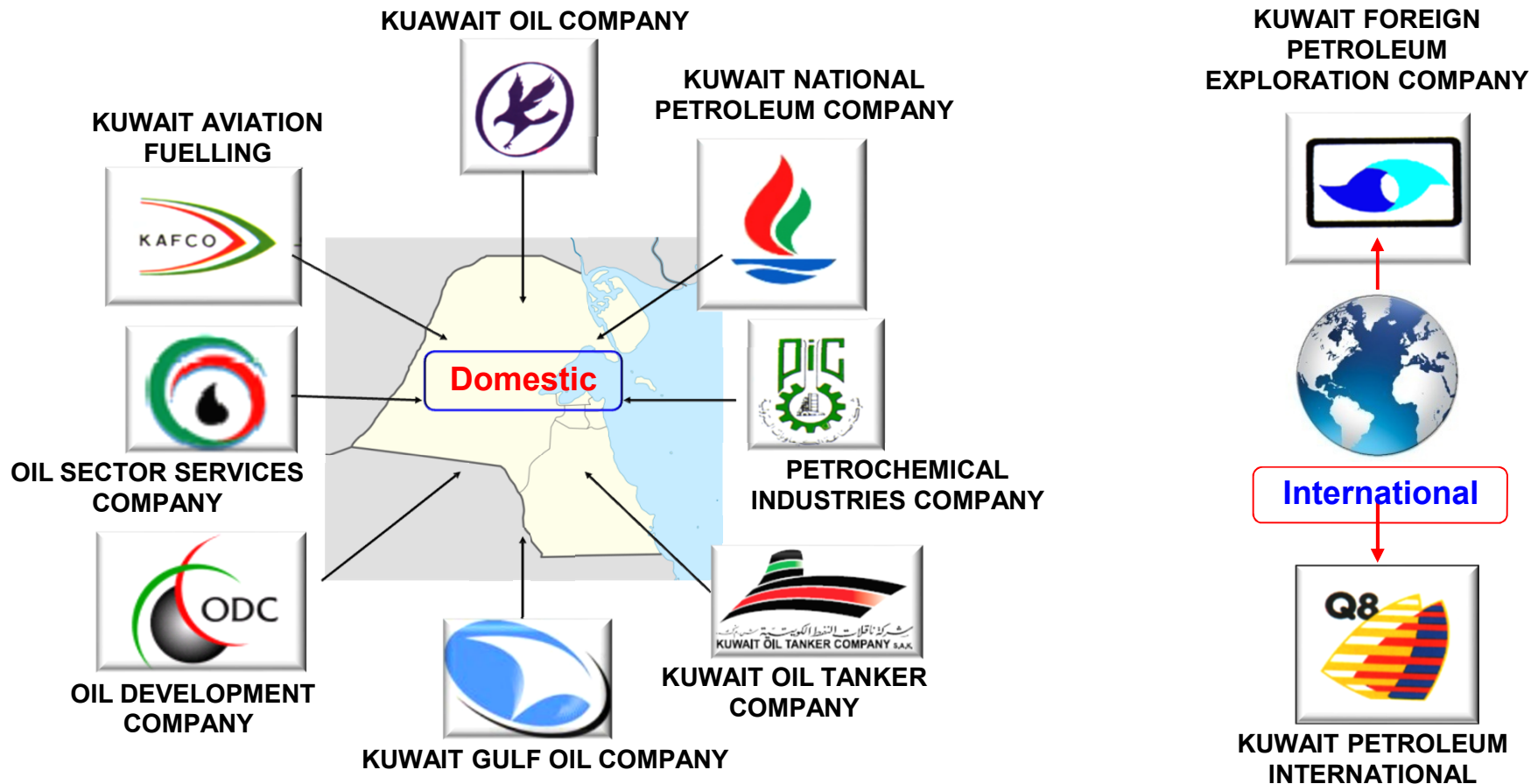
Best Practices in KNPC

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January 27, 2012

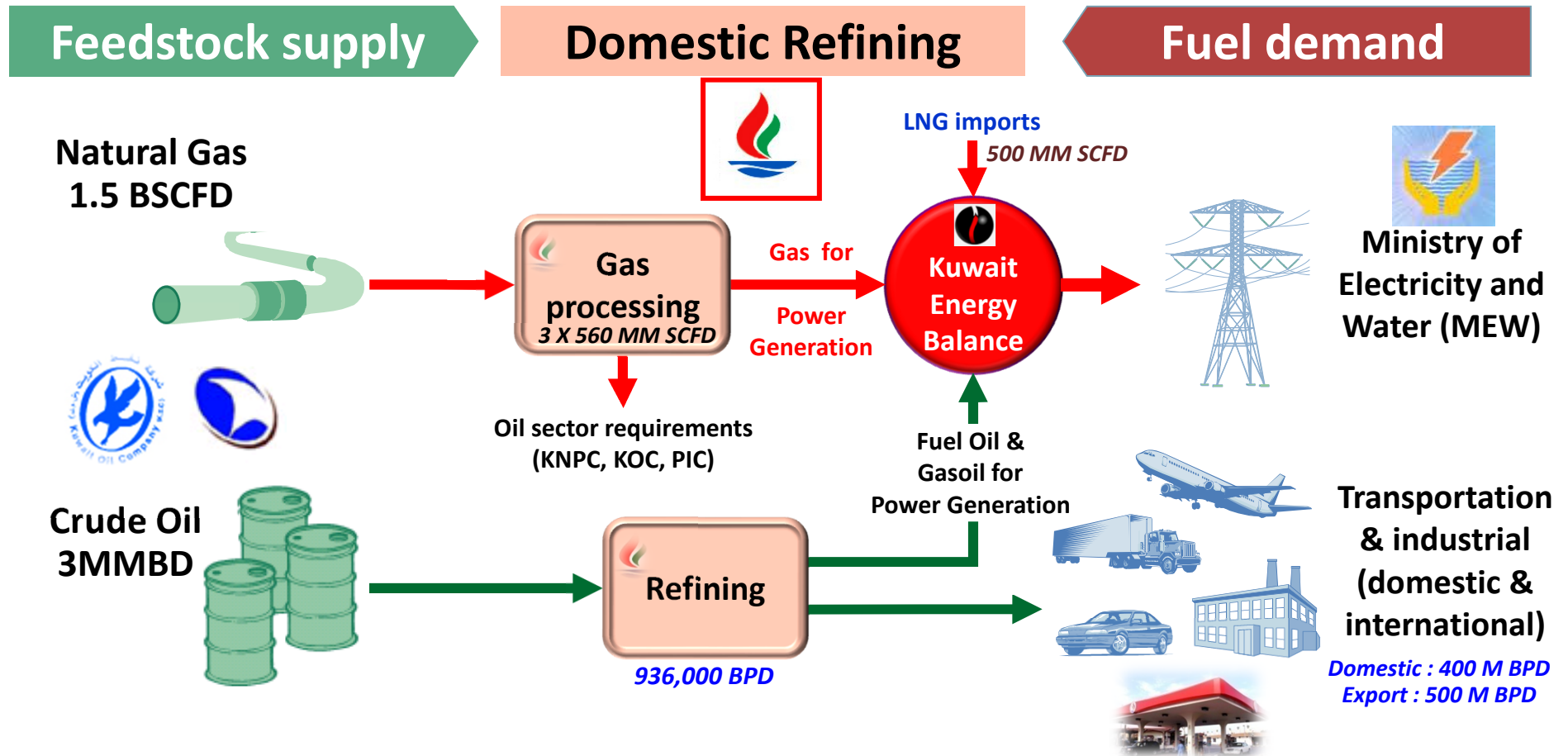
Subsidiaries of Kuwait Petroleum Corporation









- **KPC was established in 1980, fully owned by the State of Kuwait**
- **10 specialized Subsidiaries operate in Kuwait and across the world**
- **Strong player in Western Europe & Far East's Oil & Product markets**

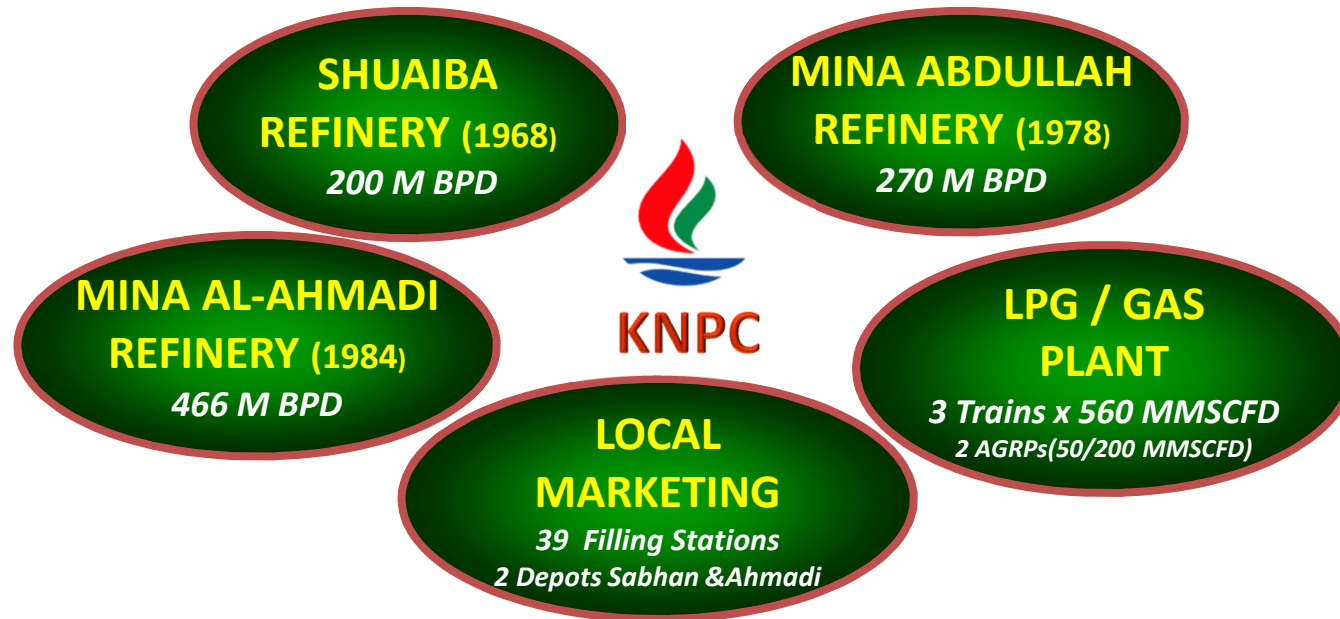


Domestic Refining : for satisfying Fuel demand



KNPC Core Business

-  Refining & Local Marketing arm of KPC
-  Established in 1960, focused on Marketing initially
-  Operates three complex Refineries, as a Profit centre
-  Refining capacity : 936,000 BPD
-  Manages and Operates five Marine Export facilities
-  5,500 employees

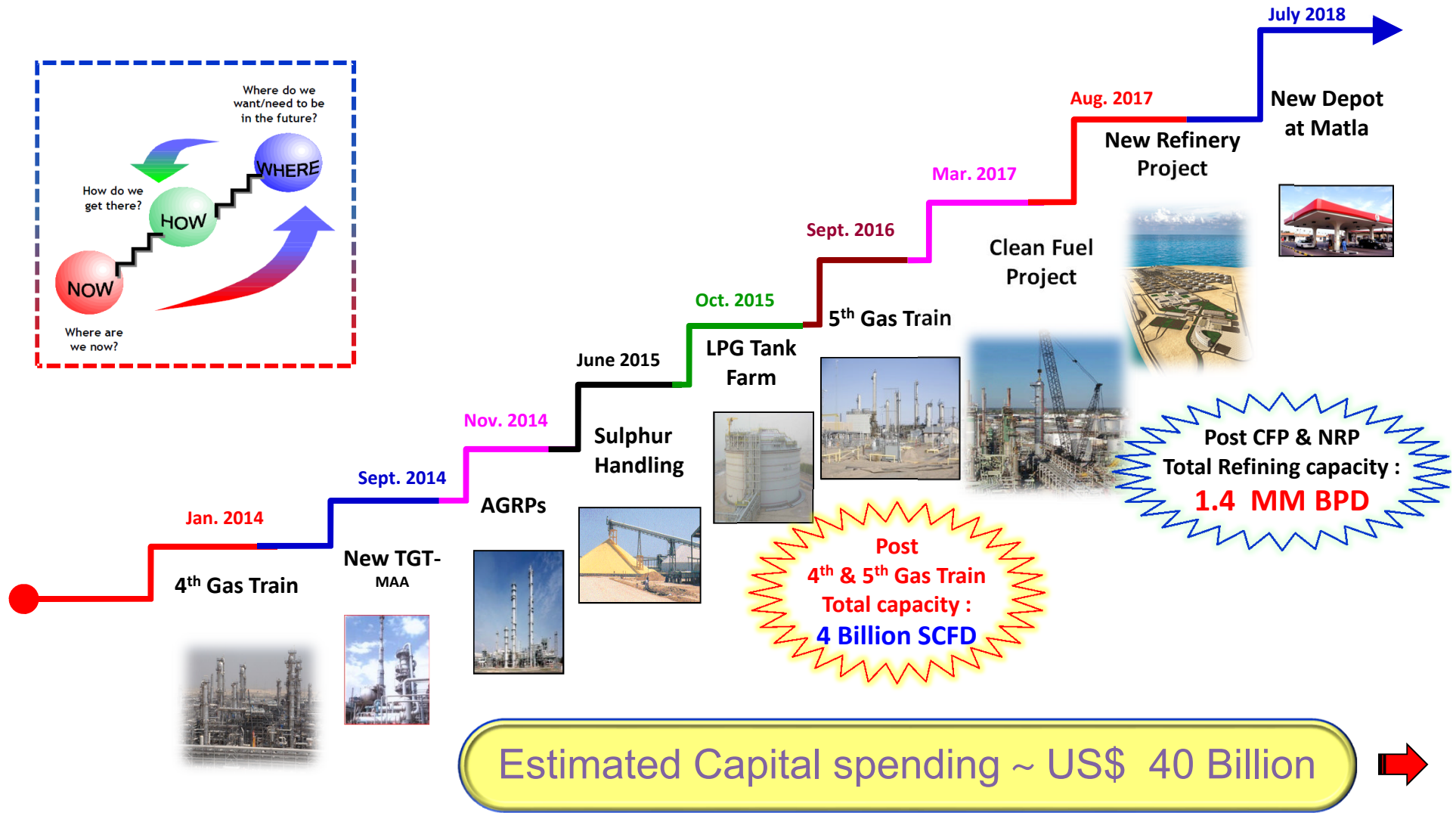
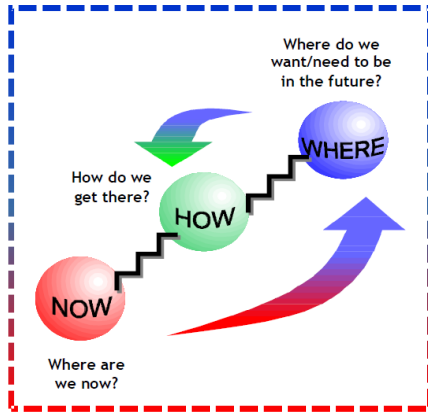


Strategic Directions : Domestic Refining & Gas Processing

1. **Grow** Refining capacity up to 1.4 million BPD locally
2. **Meet** local & international Fuel demand for Power, Transportation and Industrial sectors
3. **Maximize** domestic processing of Heavy / Sour Crudes – according to upstream heavy Crude production profiles
4. **Achieve** Operational Excellence through enhancing complexity
5. **Integrate** with Petrochemicals to improve overall margins
6. **Provide** required Gas Processing capacity according to upstream Gas availability profiles



KNPC – Growth Opportunities



Our Mission Maximize the value of Kuwaiti hydrocarbons through domestic and international refining, petrochemical and marketing.

Our Vision To be a leading player in the global oil & gas downstream sector, recognized for the strength of our performance and admired for our significant contributions to the State of Kuwait.

To accomplish our Vision:

Values - we commit to...

KPC Downstream...

Superior Business PERFORMANCE

We integrate across the downstream to maximize the value of Kuwait's hydrocarbons while meeting Kuwait's fuel demand

- Excellence:** High performance, Operational Excellence, continuous improvement, high quality products and services, customer focus
- Motivation:** Collaborative work place, teamwork; loyal environment driven by appropriate performance culture

... Delivers through ...

The right PRACTICE always

We pursue HSSE and operational excellence in everything we do

We strive for growth and profitability in all our businesses

We provide our customers with high quality products and superior service, constantly

- HSSE:** Environmental protection, safety, security, and healthy workplace
- Society:** Corporate social responsibility in Kuwait and in host communities
- Alignment:** Care for KPC's interest and issues and ensure alignment to achieve KPC's goals "KPC First"
- Flexibility:** Willingness to change, Innovation, Responsiveness

... Superior People and Partnerships

Build Best PEOPLE

We work as a team and continuously develop our people



We are a reliable and trusted employer and business partner in Kuwait and internationally

We care for the environment, our customers and the communities in which we operate

- Integrity:** Openness, trust, respect, fairness, transparency, honesty, reliability, high ethical standards, professionalism, accountability
- Partnership:** Long-term, value-adding relationships that support growth and enhance operational excellence



Adopting Optimization Tools & Best Practices - Summary

| | | |
|---|---|--|
|  <p><i>Superior Business PERFORMANCE</i></p> | <ul style="list-style-type: none"> • Supply Chain Optimization • Long Term Strategic Plan - 2030 : Monitoring & Implementation - PMO • Refinery Performance Analysis - Solomon Benchmarking since 1986 • Key Performance Measures (KPM) - tracking Refining Metrics • Enterprise Risk Management (ERM) • Balanced Score Card (BSC) |  |
|  <p><i>The right PRACTICE always</i></p> | <ul style="list-style-type: none"> • Health, Safety & Environment Management System (SHEMS) <ul style="list-style-type: none"> ▶ <i>OHSAS 18001, ISO 14001 and ISO 9001:2008</i> ▶ <i>Regular Safety Performance Audit (SPA)</i> • Fostering Operational Excellence (FOE) : <ul style="list-style-type: none"> ▶ <i>Profit Improvement Programs & Plant Availability</i> • KNPC Project Control Procedure – Gate System • Energy Management Plan |  |
|  <p><i>Build Best PEOPLE</i></p> | <ul style="list-style-type: none"> • Structured On-Job Training (S-OJT) • Technical & Professional Ladder (TPL) : advancement of Specialists • Centre for Leadership Development (CLD) : develop competent & talented Leaders |  |



Supply Chain Optimization - Highlights



- Integrated Business solution for management & operation of Logistic Chain
- Objectives : **Customer-focus**, **On-spec products on schedule**, **minimum Quality give-away**, **Optimizing Refinery utilization**, **reducing Risks** & **increase overall Profitability**
- Maximizes Efficiency of Planning, Scheduling and Production, **Faster Decision making** and **Improves Integration Platform**
- Includes state-of-the-art Decision making support tools with a number of Business Processes : **first time ever in petroleum industry at this level of complexity** .

1. **Mid-Term Plan** : Global (*) 18-month rolling optimal production plan to maximize Profit

2. **Global Short Term Plan** : Global 4-6 months rolling plan with boundaries for further optimization by individual Refineries

3. **Global Scheduling** : Feasible schedule on daily inter-refinery transfers in line with Global Short Term Plan

4. **Dock Scheduling** : Global (*) daily loading schedule of vessels

(* across 3 KNPC Refineries)

Supply Chain Optimization - Framework



Crude & Feedstock Planning



Crude Refining



Marketing



Distribution



| | | | | |
|-------------|--|-------------------------------|--|---------------------------|
| Planning | Strategic Planning | | | |
| | Long Term Planning (Cross Refinery) | | | |
| | Mid-Term Planning (PIMS) | | Demand Forecasting | |
| | Short Term Planning (PIMS) | | Pricing Management | |
| Scheduling | Crude and Feedstock Planning | Inventory Projections (ORION) | Refinery Scheduling (ORION) | Supply - Demand Balancing |
| Execution | Crude and Feedstock Planning | Refinery Operations Execution | Oil Movements and Dock Execution (ATOMS) | Exports |
| Performance | Performance Management – monitoring, analysis and correction (ASPEN Reporting Framework, Event Manager Tracking) | | | |
| | Oil Accounting & Mass Reconciliation (ADVISOR, LIMS, IP-21) | | | |

KNPC Scope

KPC-IM scope



Long Term Strategic Plan-2030 : Implementation & Monitoring

PMO –Office



- **Long Term Strategic Plan (LTSP-2030) Implementation**

KPC defined Strategy for Upstream, Downstream and Midstream sectors

- **Key investment initiatives** : next 5 years estimates **US \$ 40 Billion**

- ✓ **New Grass Root Refinery Project (NRP) of 615 M BPD**

- » meet fuel demand for Power Generation - 225 M BPD of Low Sulfur Fuel (**LSFO**)

- » most economical disposal option for **Kuwait Heavy crudes**

- ✓ **Clean Fuels Project (CFP)**

- » **upgrade MAB & MAA** refineries to meet stringent specifications & improved margins

- ✓ **Enhanced Gas processing**

- » 4th & 5th Gas Trains - support upstream **Gas availability** profiles up to 4 billion SCF



Fostering Operational Excellence (FOE)



- Ensures internal Refinery benchmarking & monitoring system
- Identifies performance gaps and pursue actions to bridge the same
- Promotes awareness on **Operational Excellence Initiatives** :
 - ✓ **Asset Utilization (Equivalent Distillation Capacity Utilization)**
 - ✓ **Energy consumption Efficiency (Energy Intensity Index)**
 - ✓ **Cash Operating Expenses**
 - ✓ **Reliability of Plant (Mechanical Availability)**
 - ✓ **Enhance Conversion (Volumetric Expansion Index)**
 - ✓ **Refinery Yields**
 - ✓ **Refining Margins and Net Profit**
 - ✓ **Gas Plant performance**
 - ✓ **Local Marketing metrics**
 - ✓ **Petrochemicals Integration**
 - ✓ **Profit Improvement Programs**



Reliability Cell

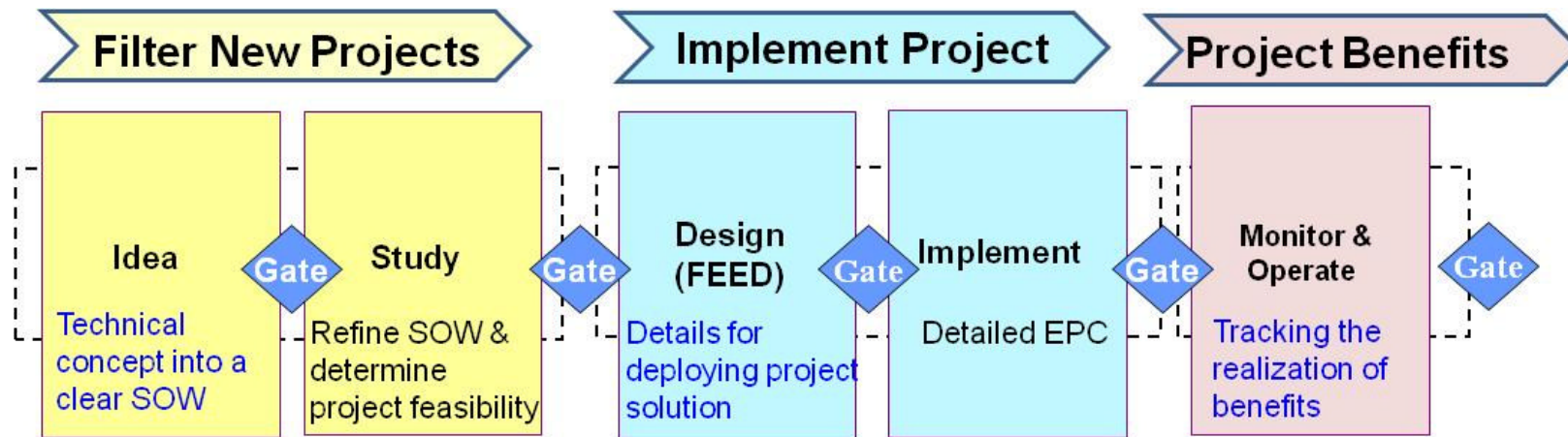


Integration across Subsidiaries

KNPC Project Control Procedure (KPCP)



- KPCP includes :
 - ▶ KPC Capital Budget guidelines
 - ▶ Adoption of the KNPC Project Methodology`'s Stage Gate approach
 - ▶ Introduction of the KNPC Project Review Committee
- Structured framework for managing and monitoring Projects :
well defined scope, better cost control & timely completion is ensured



Glossary :

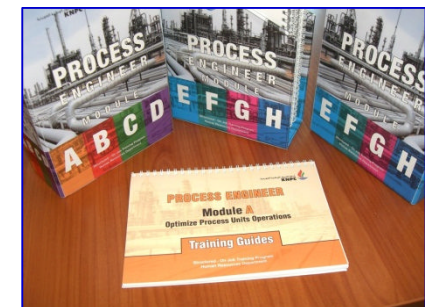
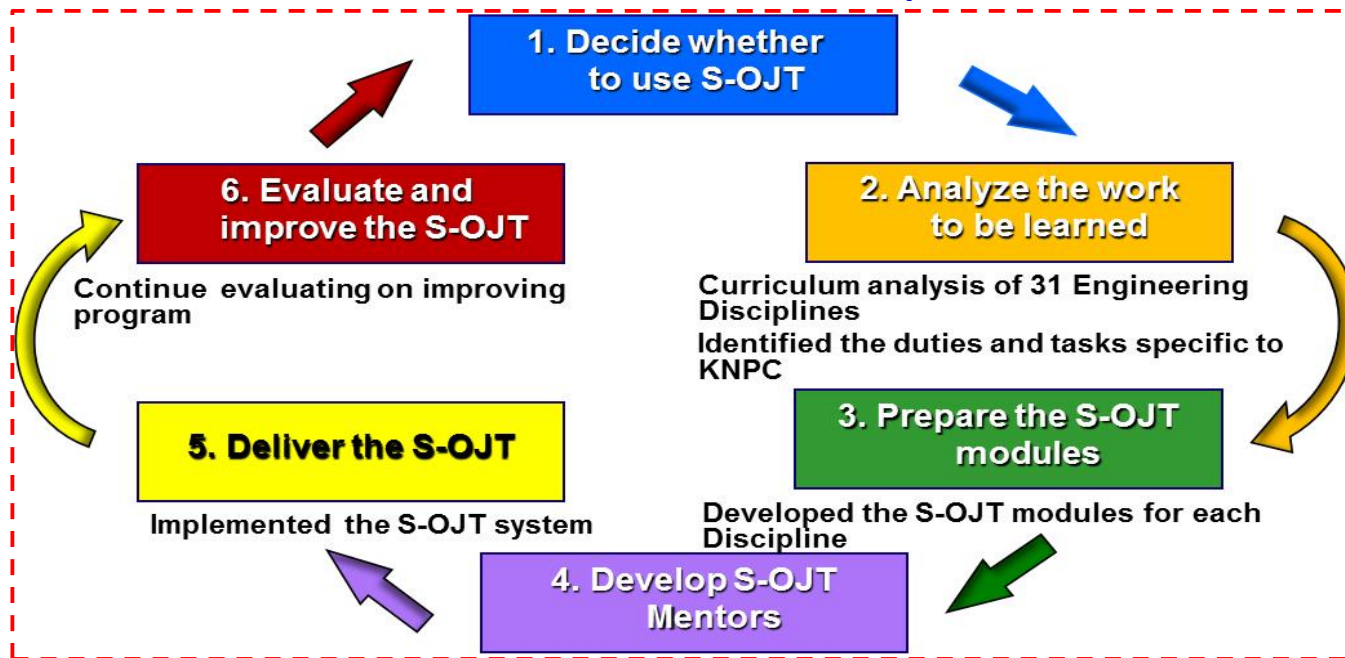
SOW : Scope of Work

FEED : Front End Engineering Design

EPC : Engineering, Procurement & Construction

Structured on Job Training (S-OJT)

- S-OJT : planned process for **training a new-hired employee** by an experienced employee
- **31 Engineering Discipline Modules** to serve Refineries business process
- **Benefits :**
 - ✓ Training on actual job expectations – results in well trained staff
 - ✓ Reduces training time without interrupting day-to-day work
 - ✓ Greater flexibility & more consistent results
 - ✓ Better than classroom modules, ensures deep involvement of trainers

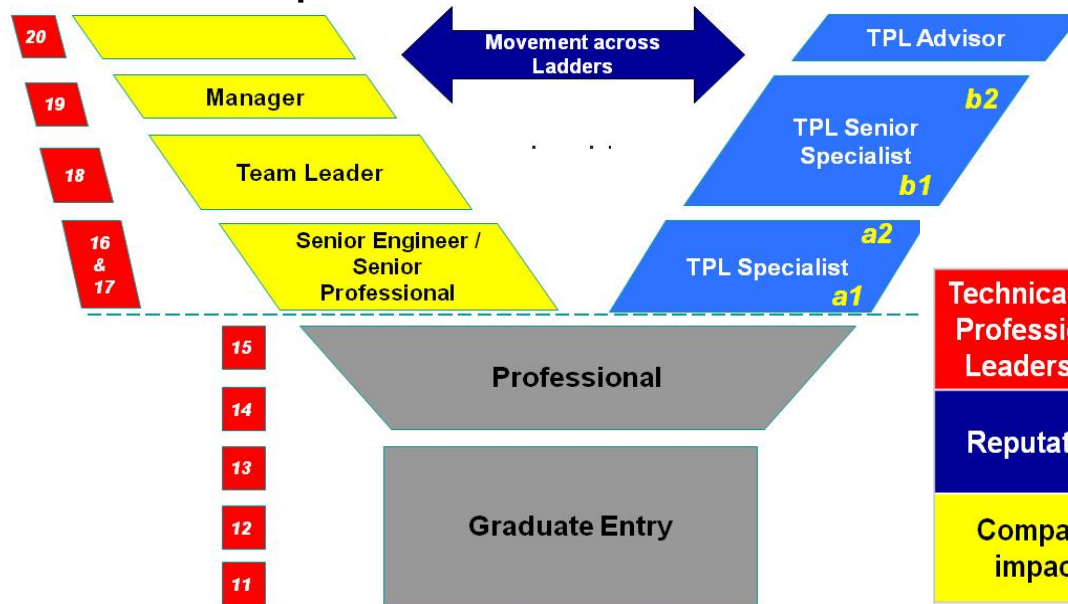




Technical & Professional Ladder (TPL) for Specialists

- A key tool in Recruitment, Retention and Development of high quality Technical personnel
- Allows for career development of individuals with special skills, without the need to move them up through Management levels
- Rewards & recognizes who “deepen” their technical or professional competencies over time
- Covers Scientific & Engineering disciplines and other functions : Legal, Taxation, Finance etc.

Equivalent in status with the Management Ladder
Encompasses 3 levels with 5 sublevels / bands



| | <u>TPL Specialist</u> | <u>TPL Senior Specialist</u> | <u>TPL Advisor</u> |
|---------------------------------------|--------------------------|------------------------------|--|
| Technical and Professional Leadership | Project Level | Area Level | Company wide |
| Reputation | Within the group or team | Across company | External |
| Company impact | Advises project | Advises Area or Function | Technical counsel to senior executives |



Key Success Factors of KNPC

Best Practices to benefit in :

- ✓ managing mega investments,
- ✓ fulfilling supply commitments,
- ✓ meeting stringent specifications and
 - ✓ improving profitability under tight Refining margins
 - ✓ Safe and efficient operations (people , facilities and environment)





شركة البترول الوطنية الكويتية (ش.م.ك.)

KNPC



Caring for a CLEANER
WORLD

