Review & Analysis of the Economics and Revenue Waterfall of the 2010 PEP Service Contract

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Presentation Overview

- *Summary of results for generic redevelopment plan under first round terms*
- *Determination of Available Cash Flow (ACF)*
- *Closing Remarks*

Summary of results for generic redevelopment plan under first round terms

Contract Overview –
First Round (Carrizo, Magallanes and Santuario)

- *Risk Service Contract (Cost reimbursement & Fee per barrel)*
- *Remuneration is*

  Biddable Fee (Fee) per Barrel for Incremental Production exceeding Base Production

  + 21% of Fee per Barrel for Base Production

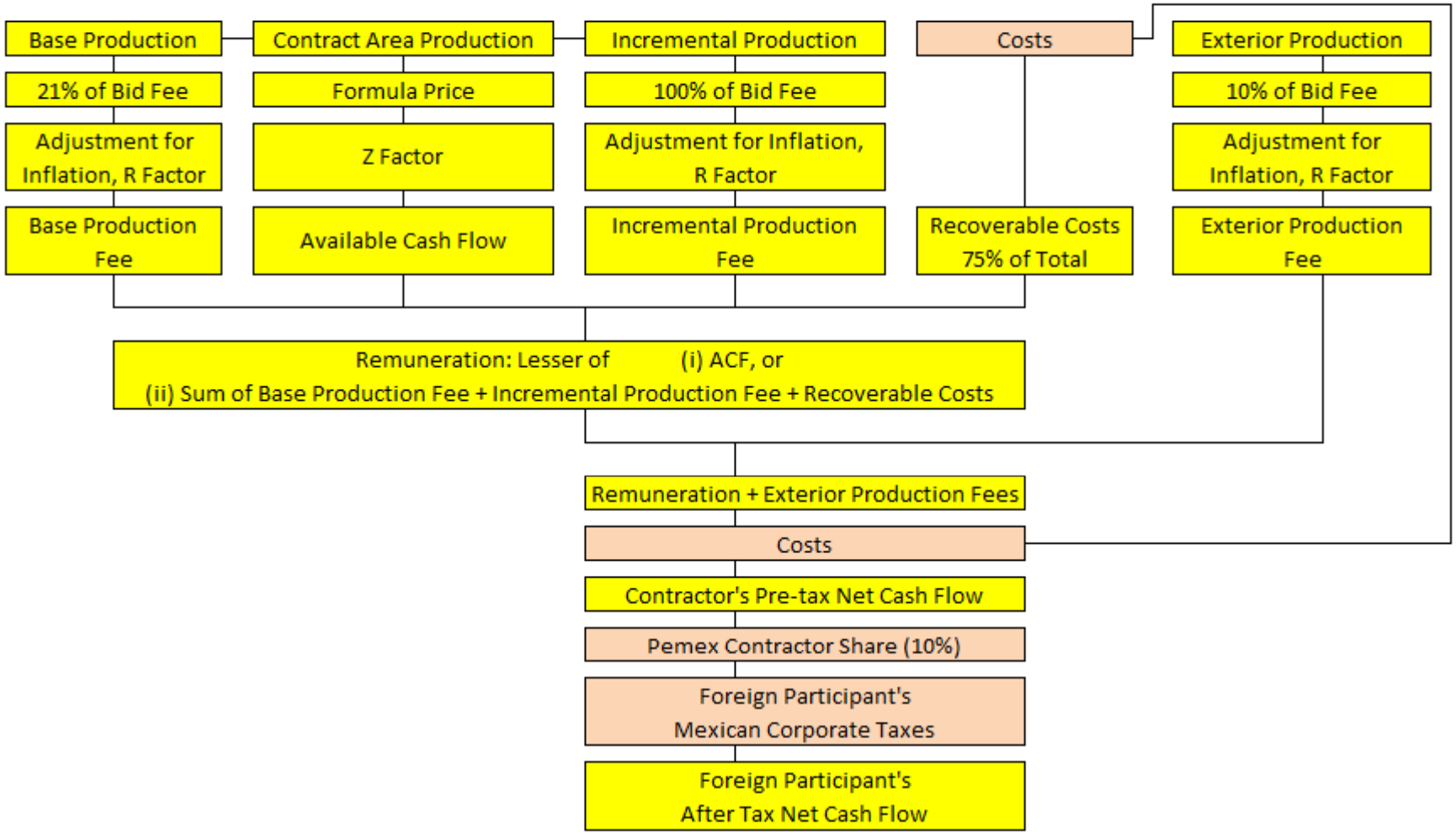
  + Reimbursement of 75% of Recoverable Costs

  the preceding sum being capped at a price-dependent proportion of deemed gross revenues

  + 10% of Fee per Barrel for handling production from outside the Contract Area

- *Where remuneration is capped, amounts exceeding the cap are carried forward to the next period*
- *First round specifies 10% participation by PEP in the Contractor*
- *All VAT paid by PEP*
- *Contractor entities subject to Mexican corporate tax at 28% (from 2014). Taxable income assumed to be remuneration less deductible costs and capital allowances*

Cash Flow Schematic
First Round Parameters



Generic Redevelopment Example

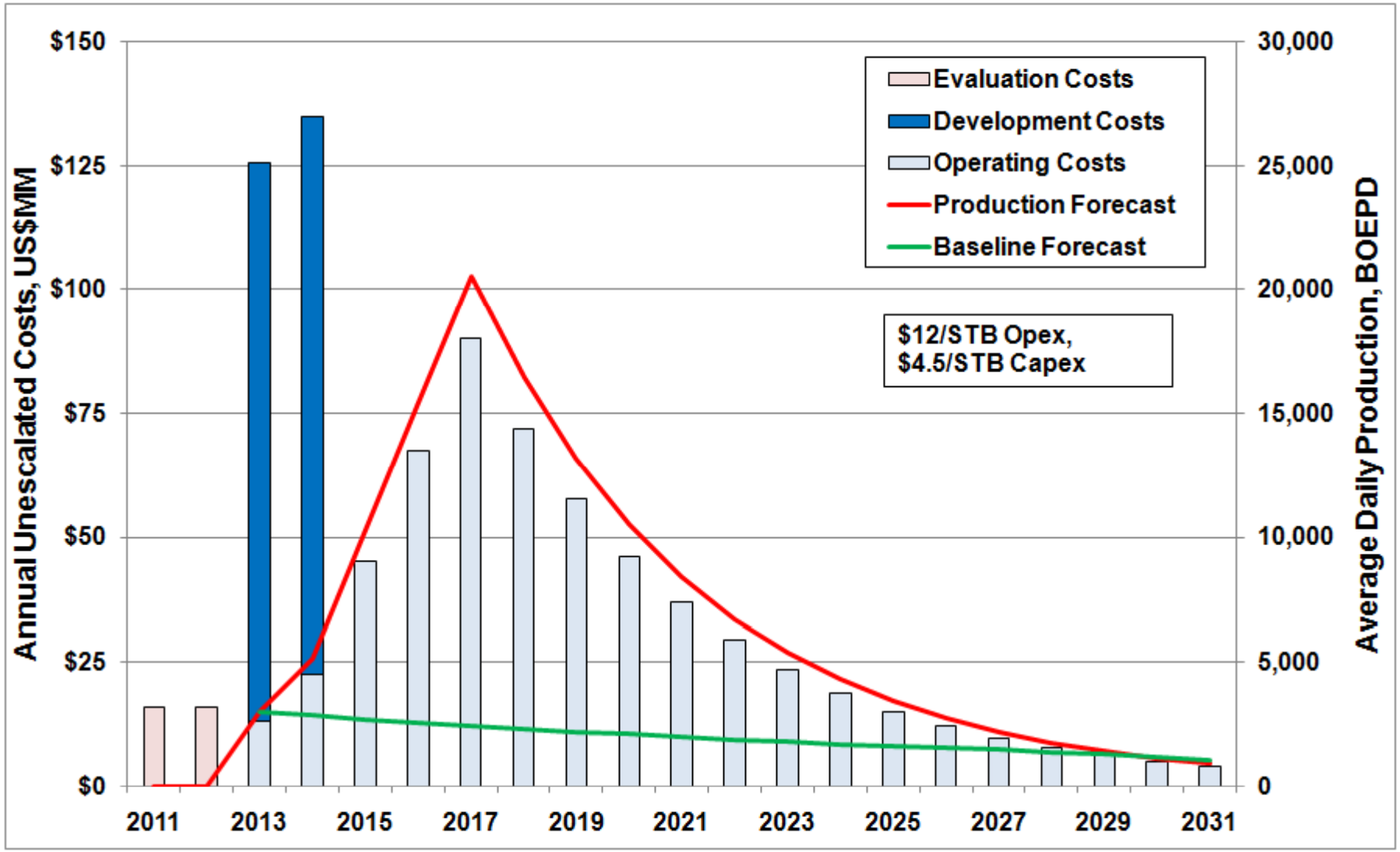
Original Oil-in-Place	500 MMSTB
Primary EUR at RF of 18%	90 MMSTB
Waterflood EUR at RF of 25%	125 MMSTB
Cumulative Production at start of redevelopment	75 MMSTB
Waterflood Remaining Reserves	50 MMSTB
Baseline Remaining Reserves	15 MMSTB
Baseline Initial Rate	3,000 BOPD
Waterflood Peak Rate, Year 4	20,500 BOPD

Case I : “Regular” Field without Marginal Field status

Case II: Marginal Field status, with, for simplicity,

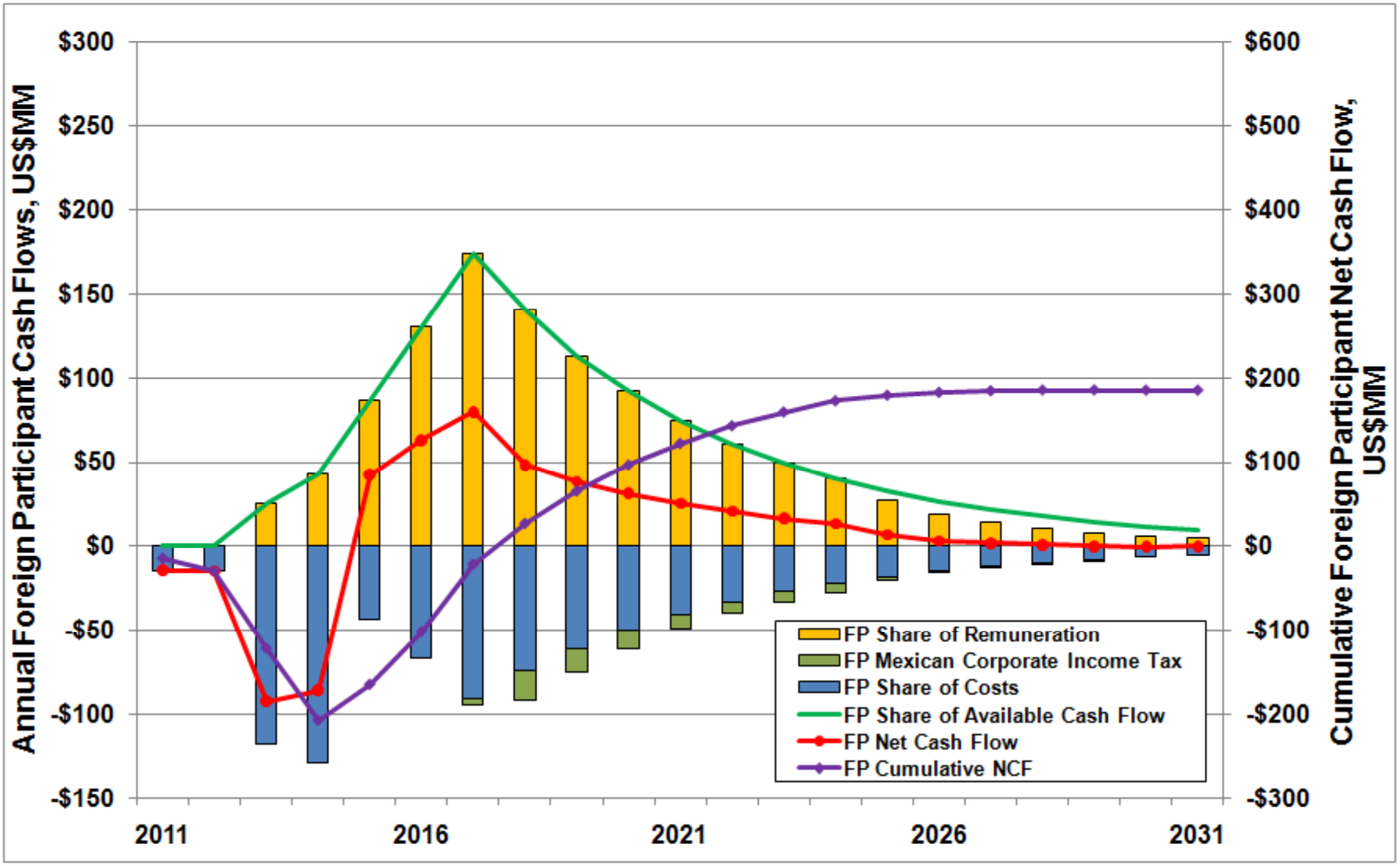
PEP 2P = P1 (Baseline profile = P1 profile)

Production Profiles and Cost Schedules



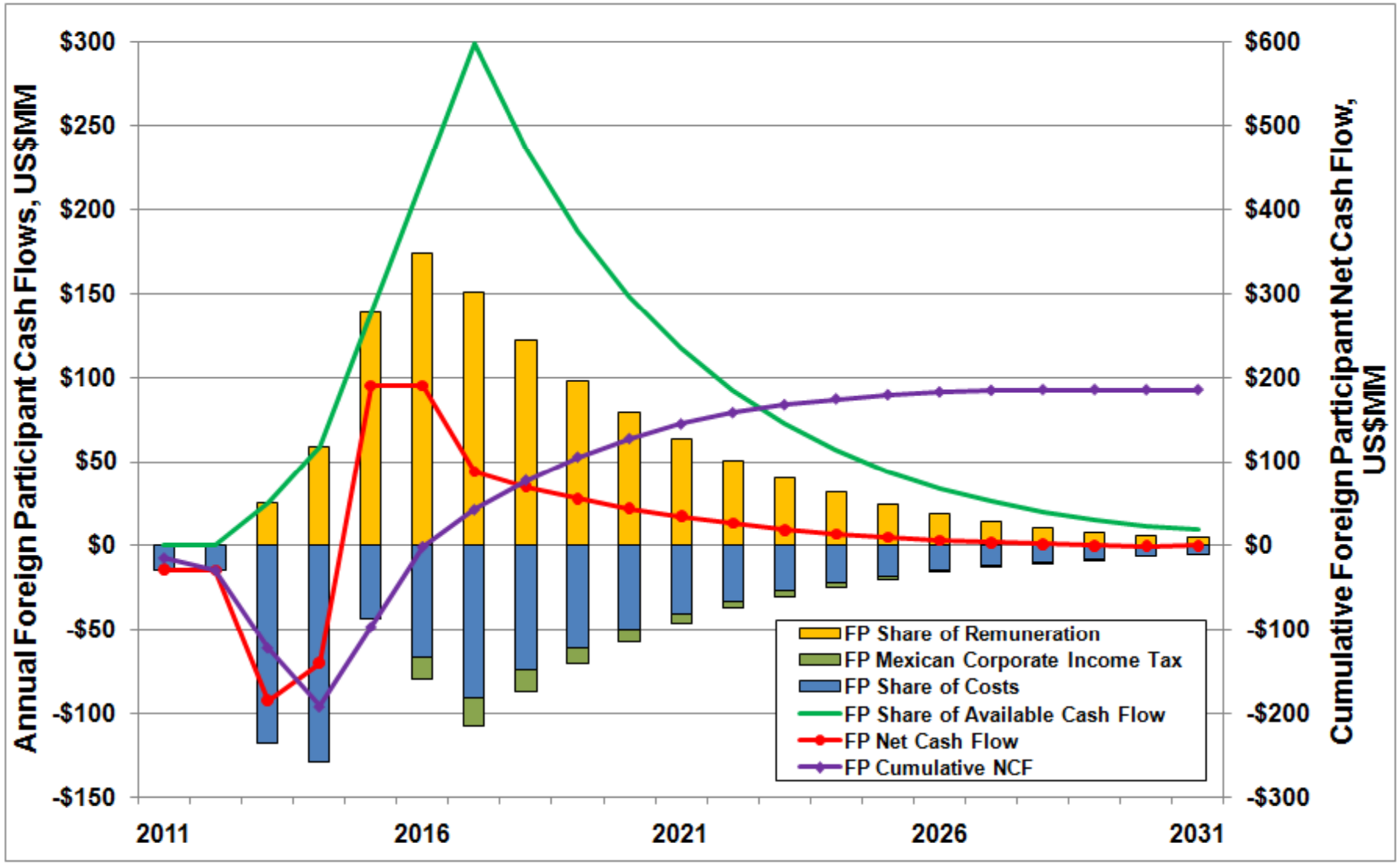
Cash Flows Net to Foreign Participant, Case I: Regular Field

$12/STB Opex, $4.5/STB Capex, $12 Fee, NYMEX WTI, 10% PEP Participation



Cash Flows Net to Foreign Participant, Case II: Marginal Field

$12/STB Opex, $4.5/STB Capex, $12 Fee, NYMEX WTI, 10% PEP Participation

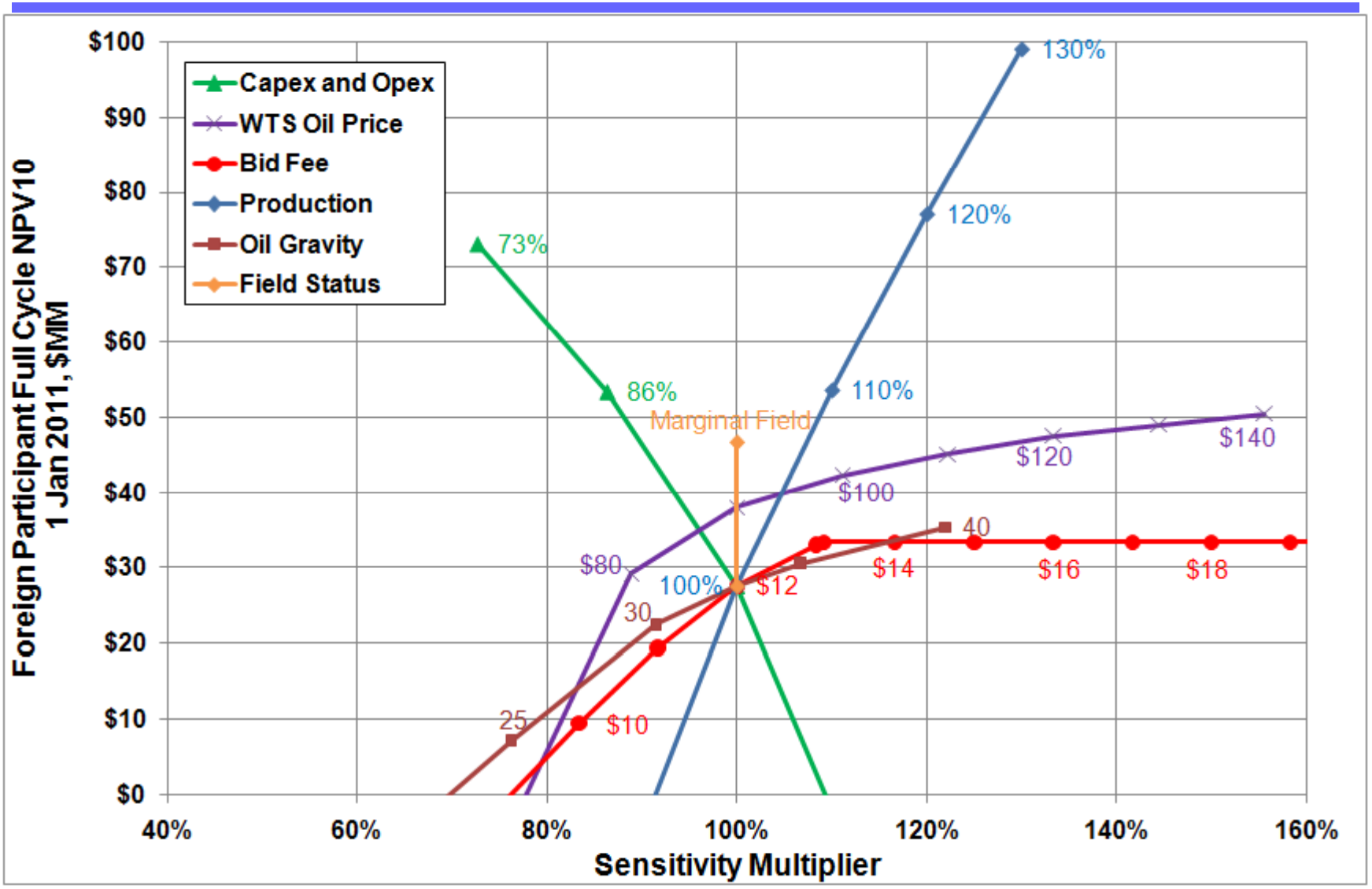


Summary of results for generic redevelopment plan under first round terms

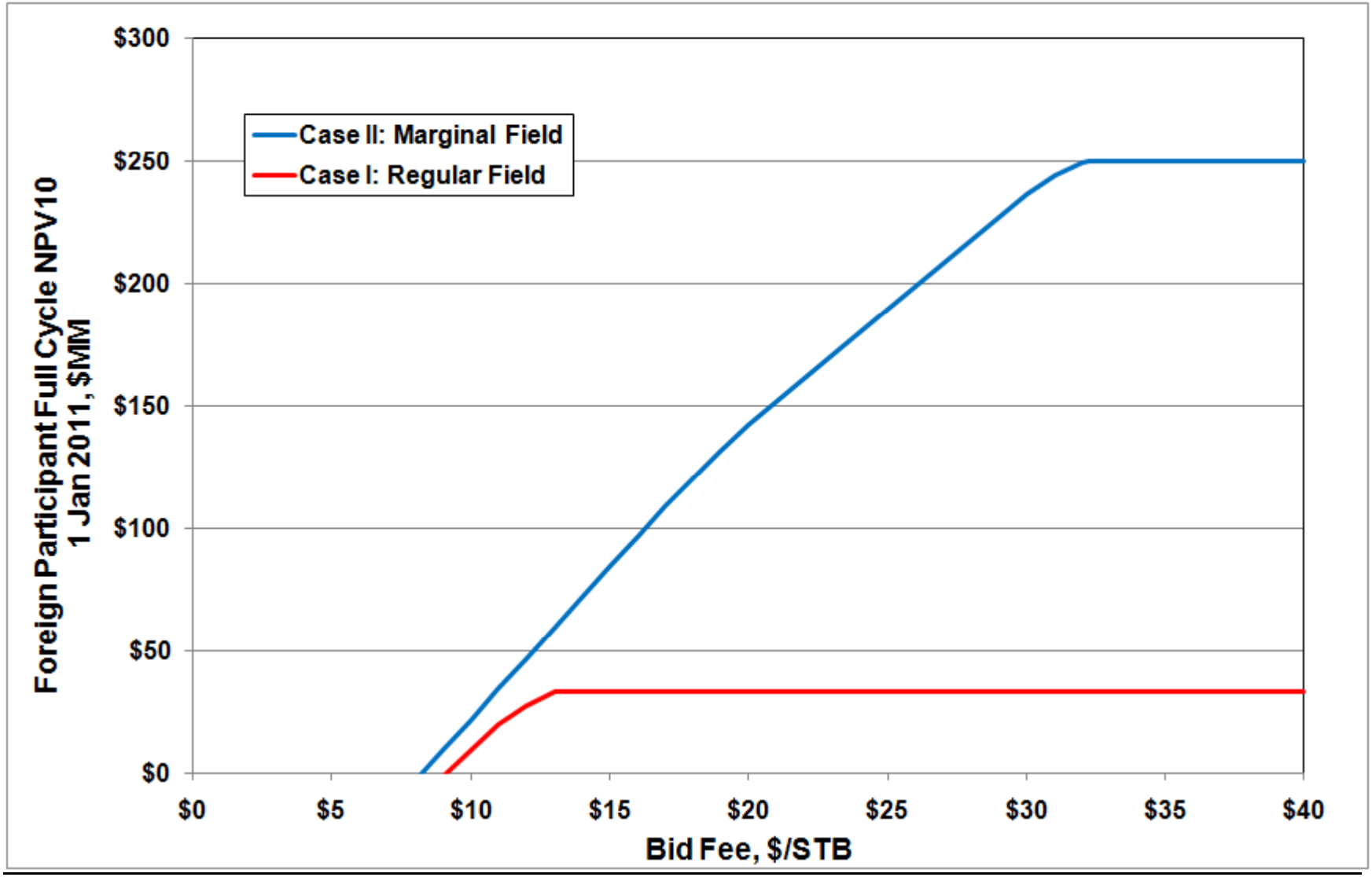
- *50 MMSTB reserves, $225MM capex, $12/STB operating costs*
- *Base Case run with NYMEX WTI 1 Jan 2011, adjusted to WTS (32.8 degrees)*
- *Foreign Participant Share net of 10% PEP share of Contractor*
- *$12/STB Fee*
  - *Case I: Regular Field yields **$28 MM** NPV10, 1 Jan 2011, **14%** IRR, after Mexican Corporate Income Tax*
  - *Case II: Marginal Field yields **$47 MM** NPV10, 1 Jan 2011, **19%** IRR, after Mexican Corporate Income Tax*

Foreign Participant Full Cycle NPV10 – Case I: Regular Field

Sensitivity Analysis

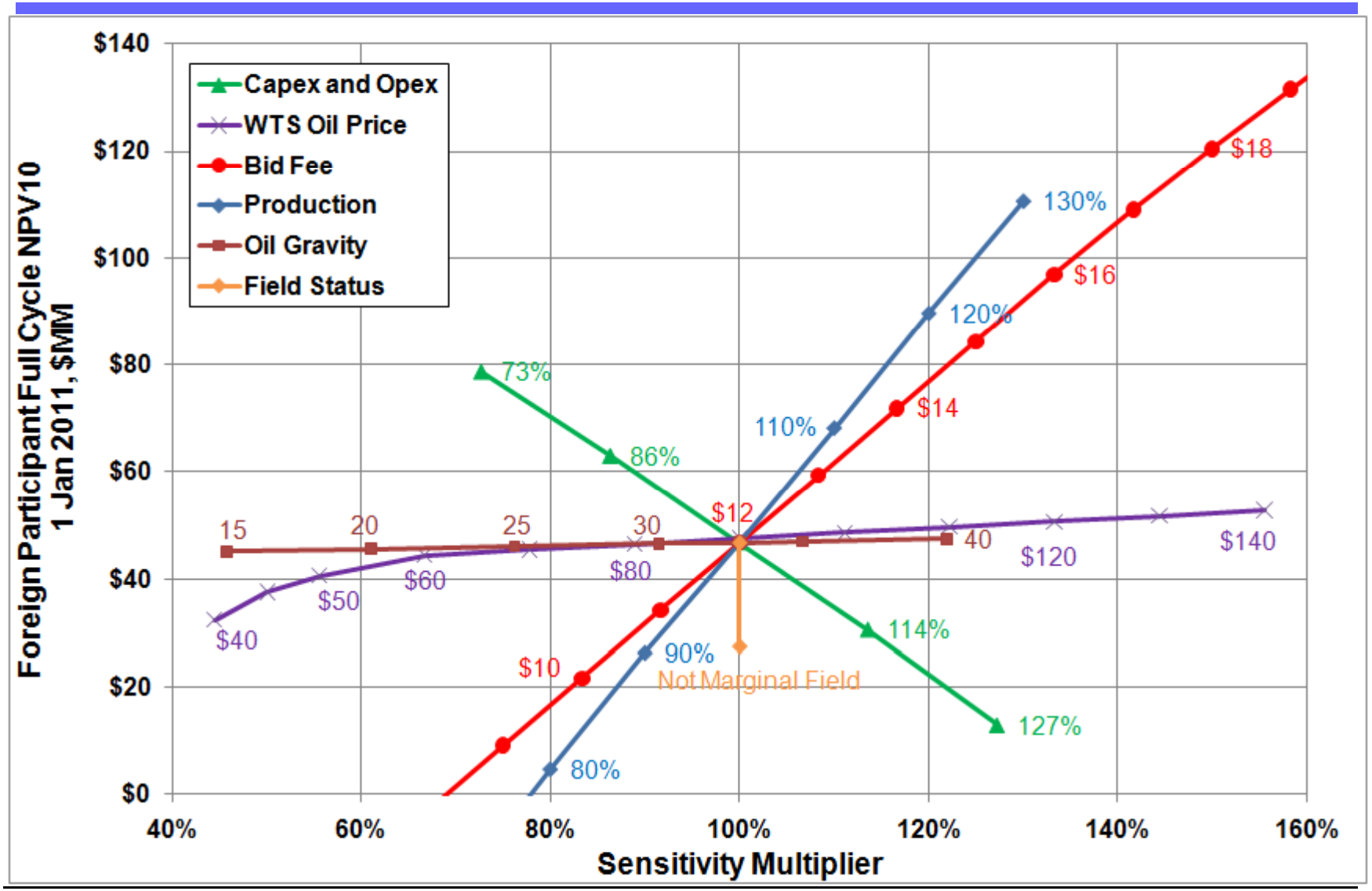


The "Fee ceiling" is reached when total (life of field) remuneration equals ACF. Beyond that there is no more ACF to fund higher Fees



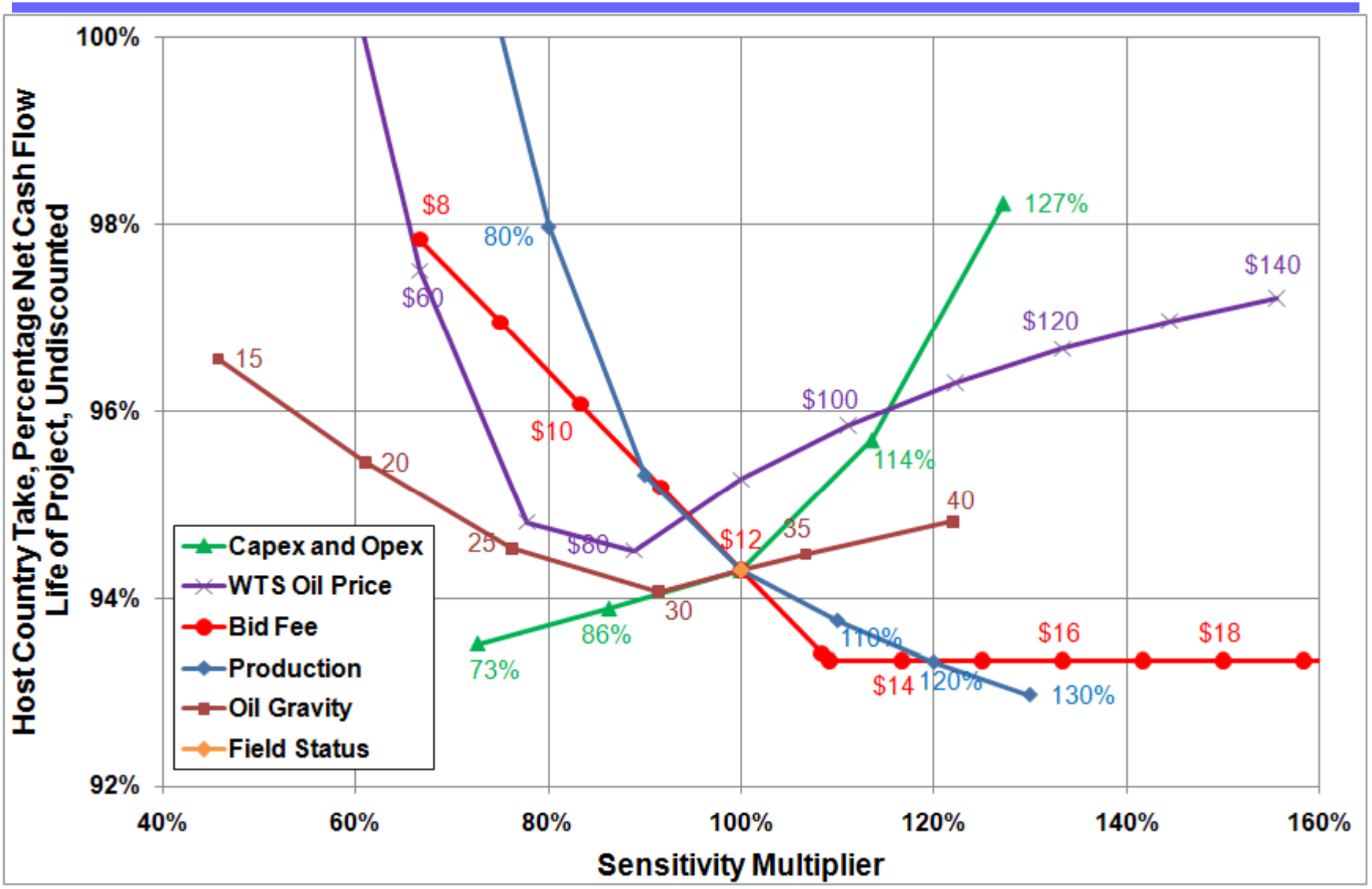
Foreign Participant Full Cycle NPV10 – Case II: Marginal Field

Sensitivity Analysis



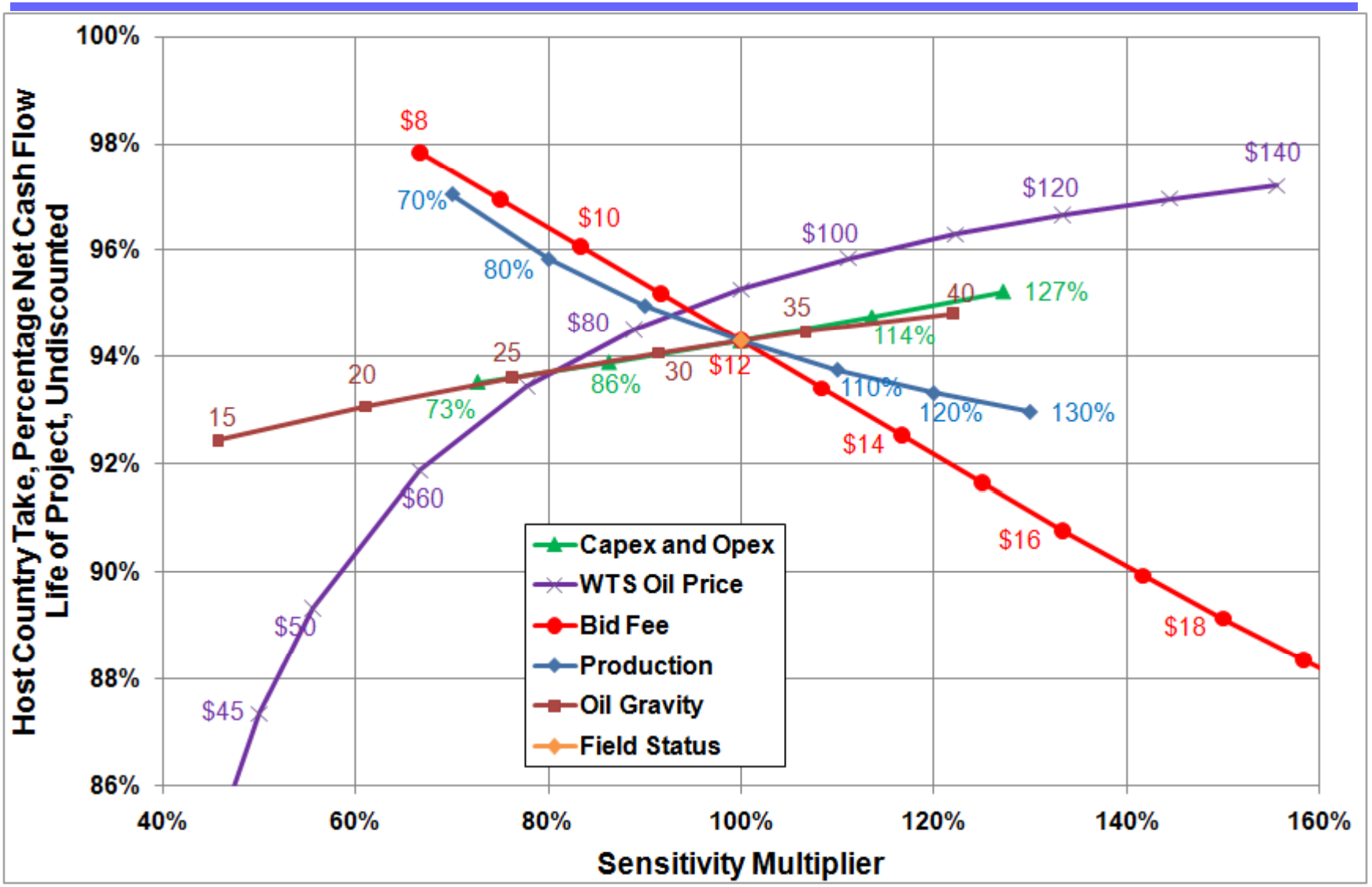
Host Country Take, Undiscounted – Case I: Regular Field

Sensitivity Analysis



Host Country Take, Undiscounted – Case II: Marginal Field

Sensitivity Analysis



Observations from Cash Flow and Sensitivity Analysis

- *Contractor cash flow determined by Available Cash Flow (ACF)*
  - *acts like a price-dependent royalty of 60%-70% for regular fields, but substantially less for marginal fields*
  - *creates Fee ceiling for any development scenario*
  - *remuneration will generally be capped in early years, and potentially for much of the project life for regular fields*
  - *important to understand calculation of ACF (to follow)*
- *Contractor economics largely insensitive to price for marginal field, but strongly asymmetrical response for regular field with Contractor exposed to significant downside risk*
- *Contractor performance highly sensitive to production rate and costs*
- *Base case Host Country Take (including PEP 10% share of Contractor) about 94% (both cases), measured as a proportion of project cash flow (deemed gross revenues less costs)*
- *Range is 93%-100% for regular field, 88%-97% for marginal field*

Determination of Available Cash Flow

Available Cash Flow (Cap on Monthly Remuneration)

Available Cash Flow = Gross Production times Formula Price times z Factor

Formula Price is

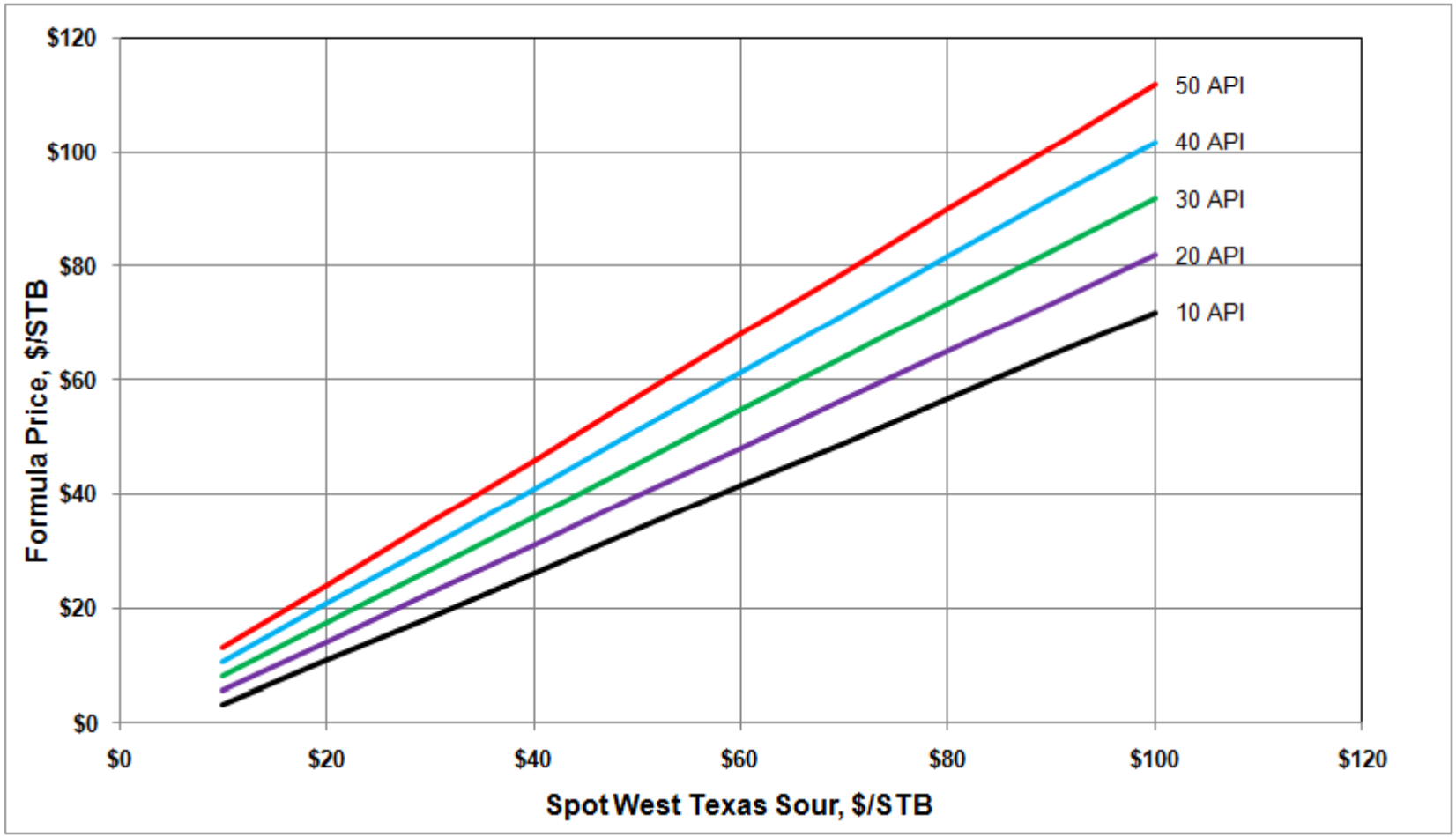
P = [0.00838 (°API) + 0.68] *WTS + 0.1607 (°API) – 6.03,

where WTS is spot West Texas Sour

Issues: Spot WTS is not defined. There is a Platt's quotation FOB Midland for 32.8 degrees API, but individual refiners post different qualities and gravity corrections.

Note this price formula is not gravity-corrected WTS, but is a prescribed formula price to be used instead of actual sales prices, and is presumably the result of some multi-variant regression analysis

Formula Price as function of West Texas Sour Spot Price for different Gravities



Available Cash Flow (Cap on Monthly Remuneration)

z Factor

z Factor is a complex discontinuous function of price and the ratio of Gross Production (q) to the "Tax Base Production" (Q_B)

$z = \alpha\, z_B + (1-\alpha)\, z_I$

where z_B is the factor for the tax base production revenues, and z_I is the factor for revenues from production exceeding the tax base production

$\alpha = Q_B / q$, if $q > Q_B$

$\alpha = 1$ (100%), if $q < Q_B$, or if field not included in the list of marginal fields approved by the tax authority (SHCP, Secretaría de Hacienda y Crédito Público).

$z_B = (4.6475/P) + 0.2828$	if $P < 22$ and P is formula price
$z_B = (6.555/P) + 0.1940$	if $22 < P < 31$
$z_B = (4.6485/P) + 0.2543$	if $P > 31$
$z_I = 0.77012$	if $P < 54$
$z_I = 0.77012 - (0.0179*(P-54)/(60-54))$	if $54 < P < 60$
$z_I = (40.93/P) + 0.0702$	if $P > 60$

Available Cash Flow (Cap on Monthly Remuneration)
Effect of Tax Base Production

"Tax Base Production" (Q_B)

Defined by SHCP treatment of Pemex named marginal fields, where original P1 reserves and P1 production profile by year added to marginal inventory in year 0. Also need to know actual production for year immediately prior to entry into inventory ("pce").

For future year t,

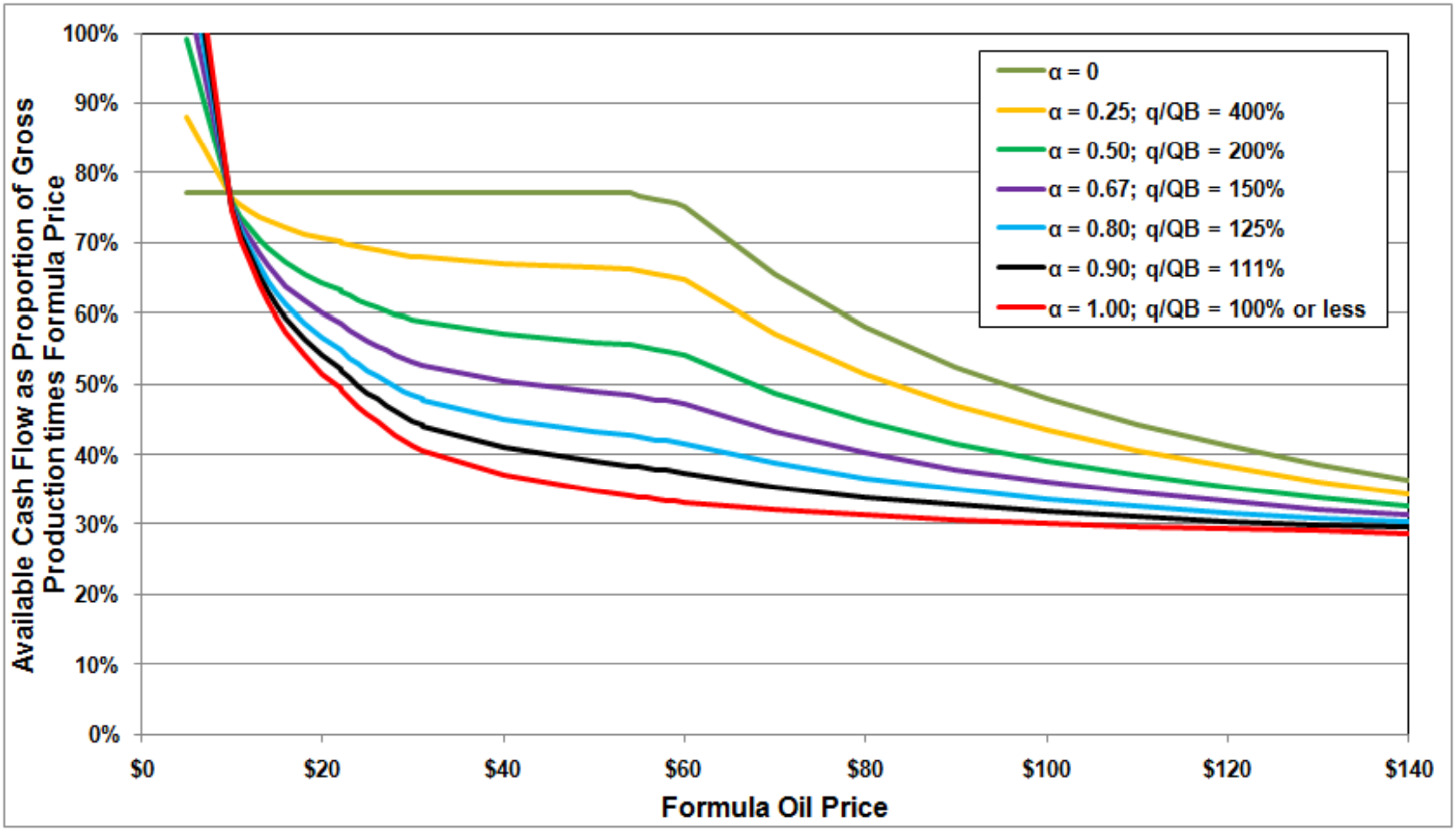
if (pce * 9) > P1 Reserves, Q_B = 90% * pce, when t < 11, and Q_B = 0 thereafter;

if (pce * 9) < P1 Reserves, Q_B = Projected P1 production for year t.

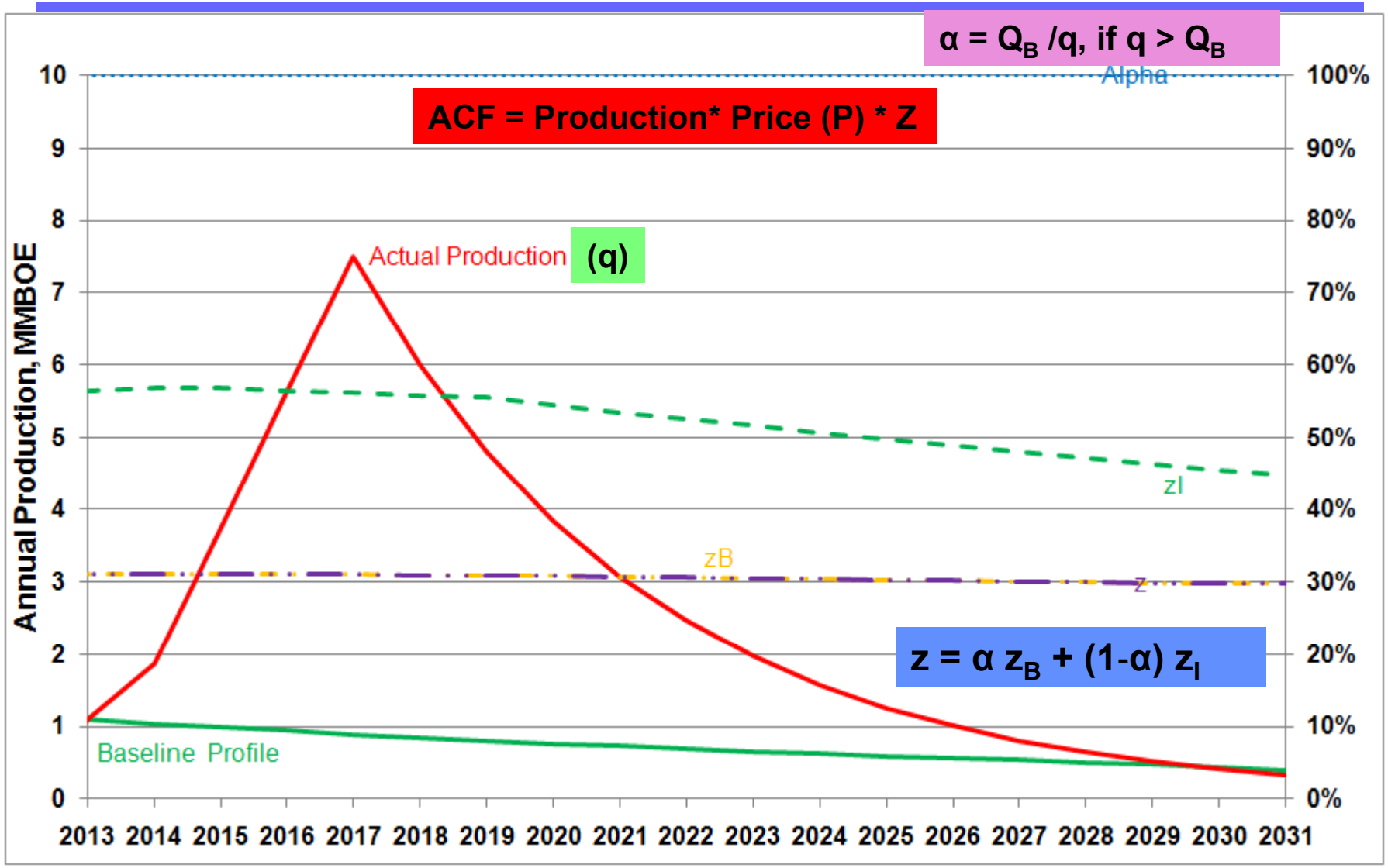
The respective P1 reserves, P1 production profiles and prior year production presumably is, or will be, made available.

Available Cash Flow (Cap on Monthly Remuneration)

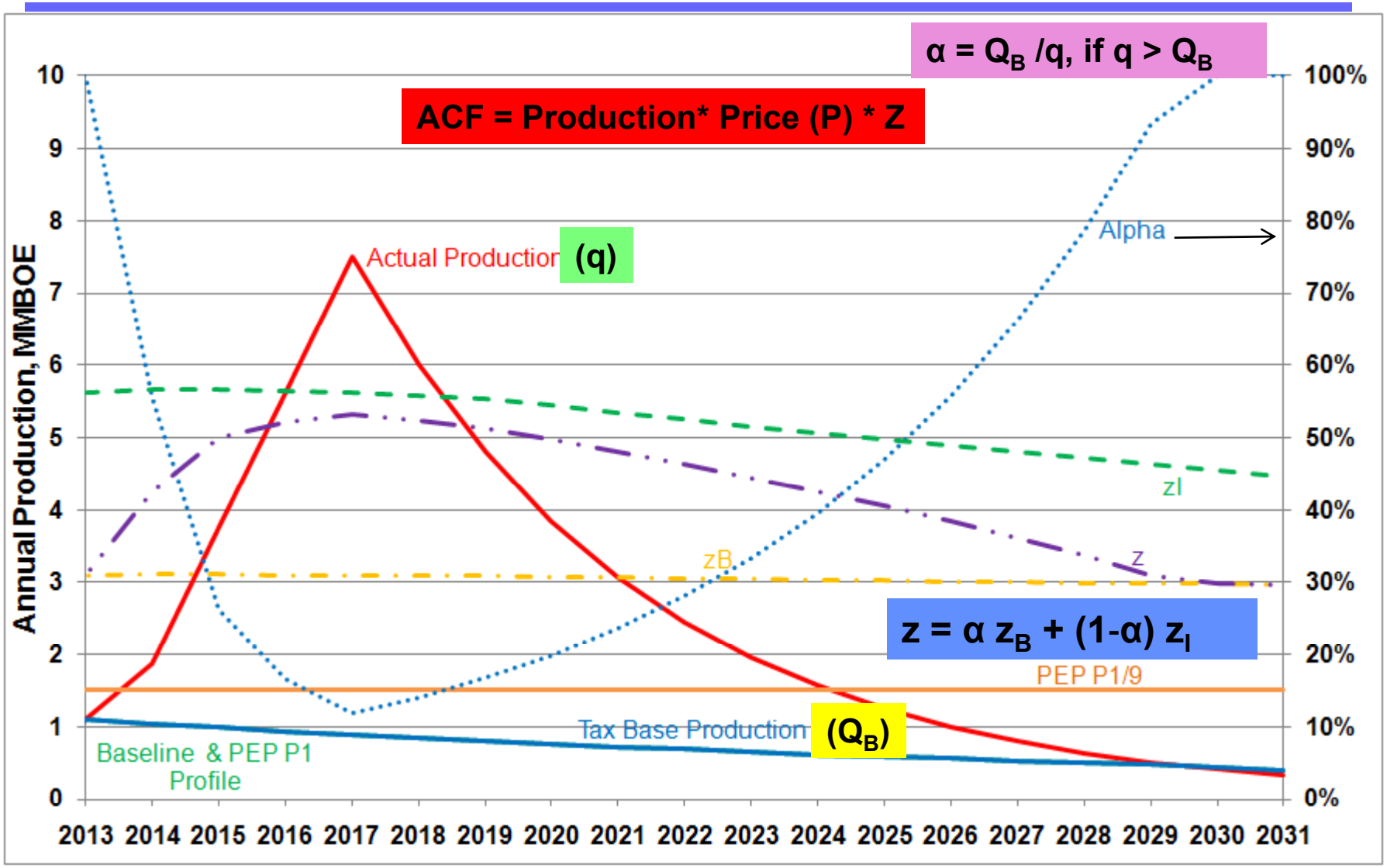
Envelope of z Factors as function of Formula Price for all values of α.



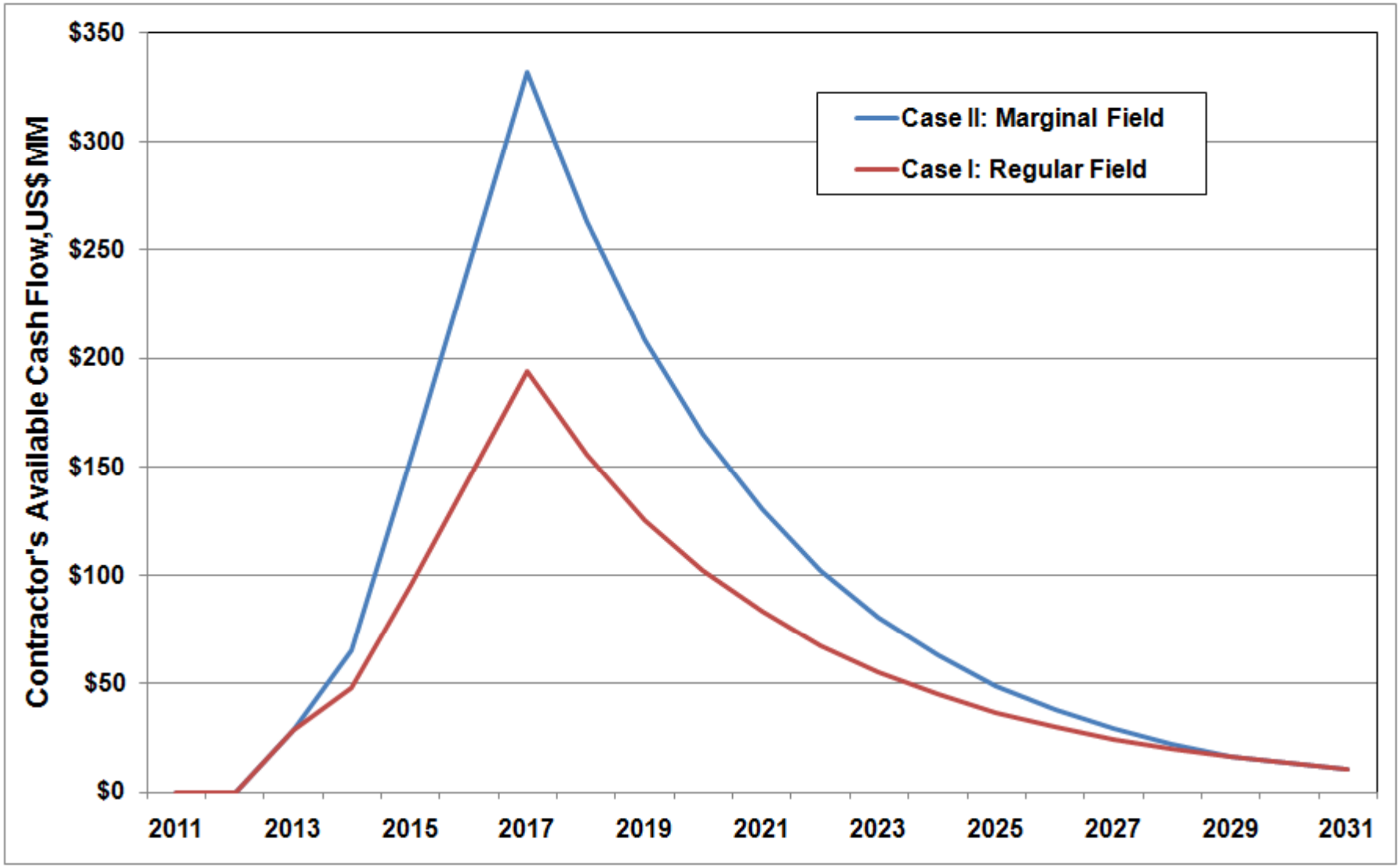
Production Profiles and z Factors – Case I: Regular Field



Production Profiles and z Factors – Case II: Marginal Field



Available Cash Flow Profiles
Case II: Marginal Field compared to Case I: Regular Field



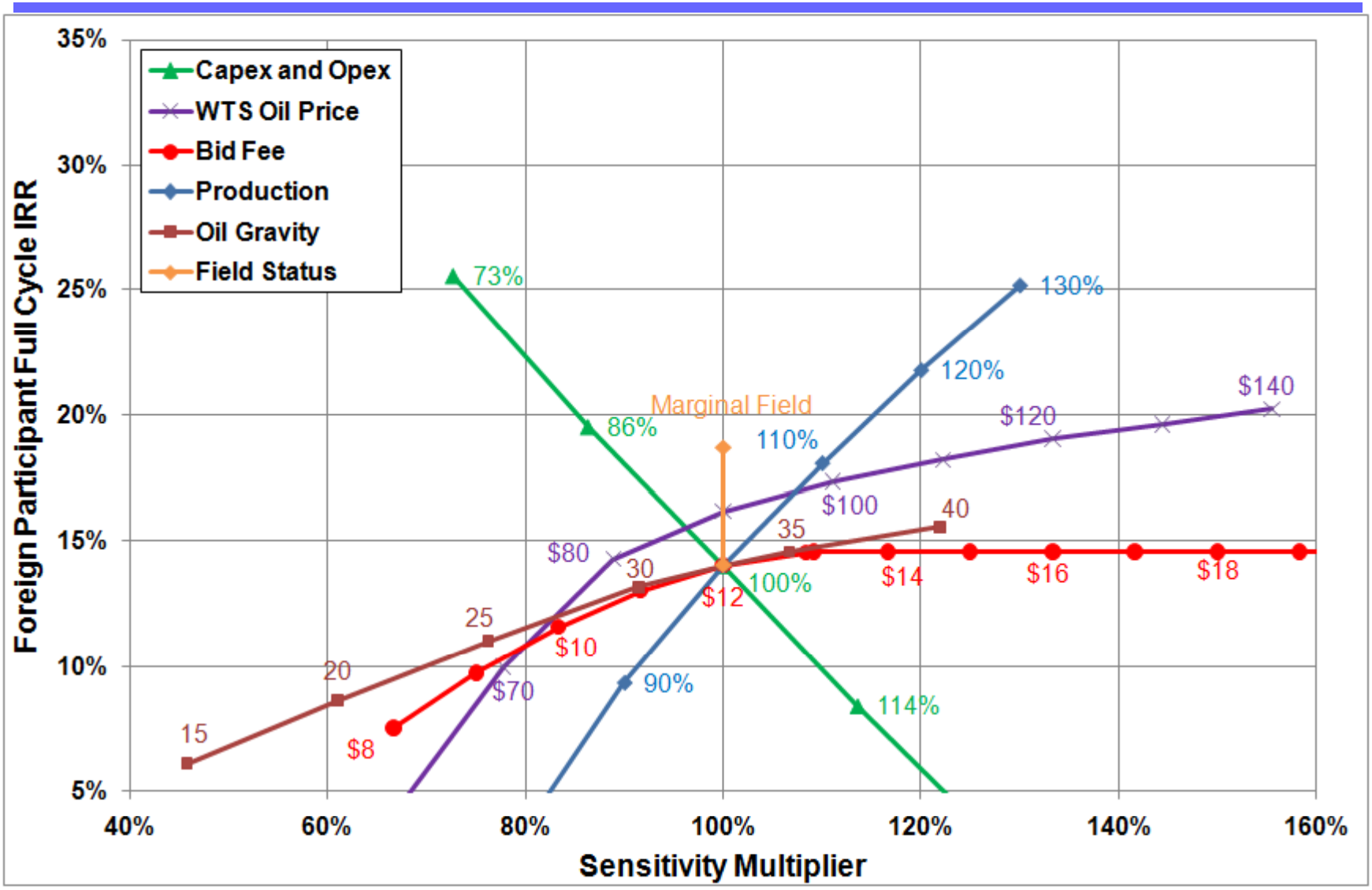
Remarks on derivation of Available Cash Flow

- *Incremental ACF for marginal fields ($\alpha < 1$, $z > z_B$) contributes significant incremental value*
  - *Accelerates remuneration*
  - *Greatly reduces likelihood ACF is insufficient to fund remuneration over life of project*
- *Field status therefore important*
  - *Sanchez Magallanes (?) and Otates fields (in Magallanes block) on transitional SHCP list*
  - *Other fields (in Carrizo and Santuario blocks) have unknown status*
  - *Re-evaluation of inventory believed to be in progress*
- *Needs clarification of application to multi-field blocks*
  - *Tax Base calculations are field-by-field basis (P1 reserves and profile)*
  - *Could simply aggregate fields but approach not confirmed*

Closing Remarks

Foreign Participant Full Cycle IRR – Case I: Regular Field

Sensitivity Analysis

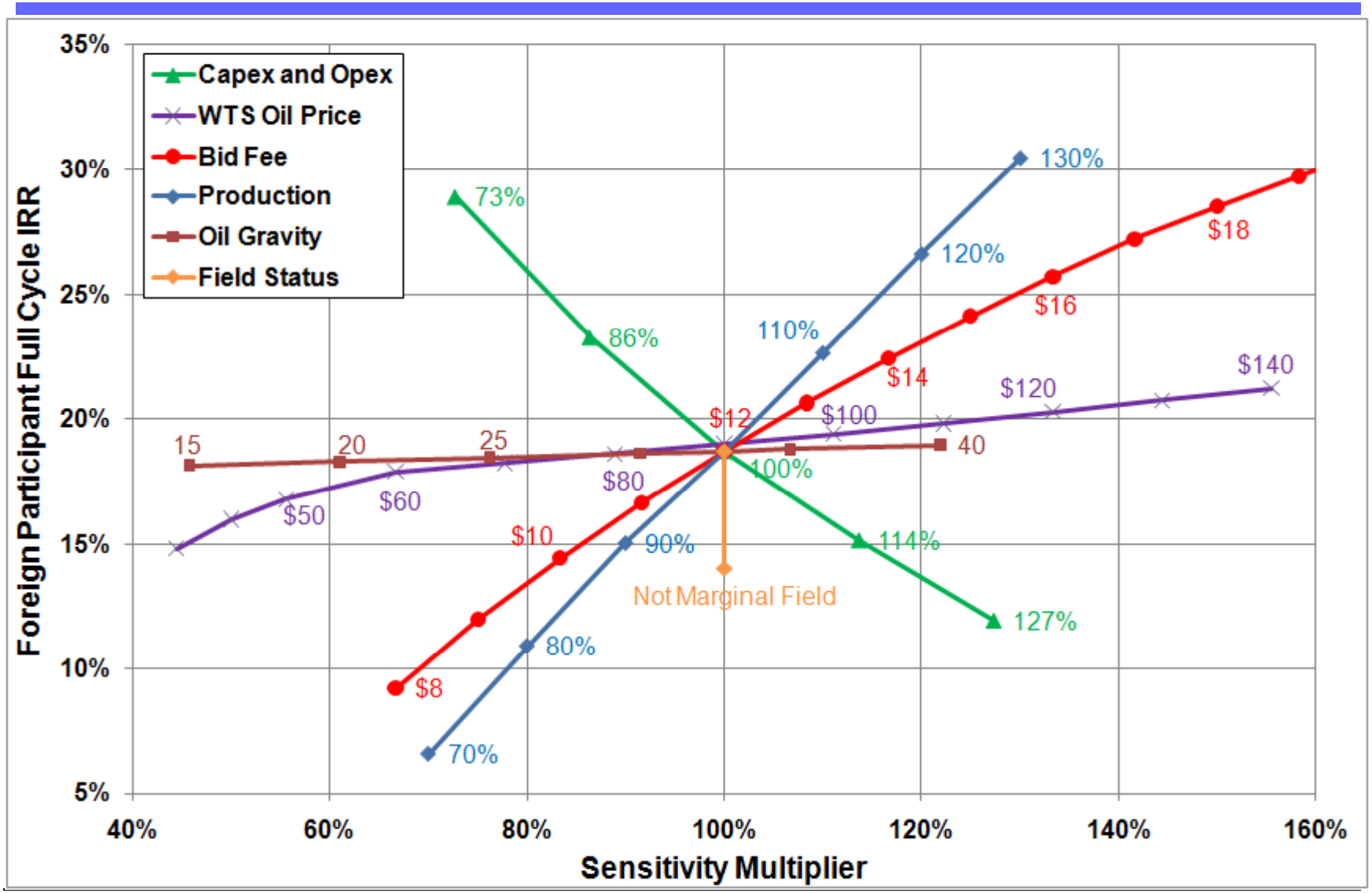


Closing Remarks – Case I: Regular Field

- *Available Cash Flow (ACF) limited to 30% of revenues*
  - *Fee ceiling ($13.1/STB) caps Foreign Participant IRR for base case costs and production at < 15%*
    - *Note that maximum fee remuneration equals undiscounted life of contract ACF less recoverable fraction of life of contract costs (here 75%)*
    - *Fee ceiling determined by maximum fee remuneration, taking into account allocation between base production (here receiving 21% of Fee) and incremental production (100% of Fee)*
  - *High likelihood ACF insufficient to fund remuneration in full in many sensitivity cases*
- *Returns sensitive to performance versus development plan*
  - *Strong incentives to outperform development plan (production and cost) to improve returns*
- *Strongly asymmetrical sensitivity to oil price*
  - *ACF insufficient to fund remuneration at prices less than $80*
- *Host Country Take 94%, range 93% - 100%*
  - *Reaches 100% when ACF insufficient to provide remuneration equal to 100% of costs*

Foreign Participant Full Cycle IRR – Case II: Marginal Field

Sensitivity Analysis



Closing Remarks – Case II: Marginal Field

- *Available Cash Flow (ACF) peaks at 57% of revenues*
  - *Fee ceiling ($32.2/STB) substantially in excess of required Foreign Participant IRR for base case costs and production*
  - *Very low likelihood ACF insufficient to fund remuneration in full in any sensitivity case*
- *Returns sensitive to performance versus development plan*
  - *Strong incentives to outperform development plan (production and cost) to obtain better returns*
- *Returns largely insensitivity to oil price*
  - *ACF always sufficient to fund remuneration*
- *Host Country Take 94%, range 88% - 97%*