Discussion Slides: Alaska Senate Finance Committee

March 30, 2012
Janak Mayer
Manager, Upstream & Gas
PFC Energy
The incorporation of progressivity into the Profit-Based Production Tax (Net) in ACES creates two significant problems

- Large-scale gas production at low gas prices could in the future significantly reduce production tax revenue from existing oil production
  - Resolving this problem within the framework of ACES requires significant complexity
  - Approach to decoupling in CSSB 192 requires ability to split costs between oil and gas production, creating high degree of administrative burden, and limiting capacity of state to effectively audit

- Options for incentivizing new production are limited, and relatively complex
  - Proposed incentives within existing framework focus on either allowances to reduce Production Tax Value, or revenue exclusions (tax holiday)
• A Progressive Severance Tax (Gross) option would instead remove progressivity from the Profit-Based Production Tax (Net), instead levying this tax at the flat, base rate of 25%

• To retain an element of progressivity, a new Progressive Severance Tax (Gross) would then be added to the system. The tax would:
  – Be non-deductible for Profit-Based Production Tax purposes
  – Be levied on gross production (net of royalties)
  – Be levied solely on oil
  – The tax would use a progressivity structure not dissimilar to that under the current system, with progressivity coefficients that apply at different thresholds.
The first option for the Progressive Severance Tax would use the following parameters:

- No severance tax below $65 Gross Value at Point of Production (GVPP)
- Progressivity of .25% commencing at a threshold of $65 GVPP
- At $125 GVPP, a tax rate of 15% is reached. At this point, progressivity is reduced to 0.05%
- Progressivity is capped 20%

A second option, which would freeze government take at 70% at $100/bbl might look like this:

- No severance tax below $60 Gross Value at Point of Production (GVPP)
- Progressivity of .25% commencing at a threshold of $60 GVPP
- At $100 GVPP, a tax rate of 10% is reached. At this point, progressivity is reduced to 0.03%
- Progressivity is capped 20%
Benefits of Progressive Severance Tax (Gross) Structure

• By removing progressivity from the Profit-Based Production Tax (Net), and having the progressive element of the structure be a Progressive Severance Tax (Gross), two things become much easier to achieve
  – The issue of gas production reducing production tax revenue ceases to be a problem without progressivity in the Profit-Based Production Tax
    ▪ Complex provisions to split costs between oil and gas production under CSSB 192 are thus no longer required
  – Significant incentives can be provided to new production, by eliminating or reducing the Progressive Severance Tax (Gross) for new production

• A wide range of levels of government take can be achieved using this structure, depending on the parameters applied
### FY 2013 Revenue Comparison

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Note: Consistent with DOR methodology, these revenue numbers do not include payments for tax credits which are not claimed against current production, as these are accounted for separately in the budget. In 2013, DOR forecasts a potential liability of $400mm for these credits.
FY 2013 Revenue Comparison

Revenue from Production Tax (inc Severance)

Cash to Companies

ANS West Coast Crude Price

$mm

(2,000) - 2,000 - 4,000 - 6,000 - 8,000 - 10,000 - 12,000 - 14,000 - 16,000 - 18,000

40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

ACES CSSB 192 Severance Tax Option 1 Severance Tax Option 2

ACS
CSSB 192
Severance Tax Option 1
Severance Tax Option 2
FY 2013 Revenue Comparison

**Total State Take**

**Total Government Take**

ANS West Coast Crude Price

- ACES
- CSSB 192
- Severance Tax Option 1
- Severance Tax Option 2
### ACES (FY 2013)

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#### Level & Composition of Relative Government Take

![Relative Composition Graph](image-url)

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### ANS West Coast Crude Price

- **Price**
- **Royalty**
- **Production Tax**
- **Property Tax**
- **State CIT**
- **Total State Take**
- **Federal CIT**
- **Total GT**
Severance Tax – 20% Maximum (FY 2013)
.25% progressivity from $65 to $125, then .10% progressivity

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Level & Composition of Relative Government Take

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Severance Tax – 20% Maximum (FY 2013)
.25% progressivity from $60 to $100, then .03% progressivity

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<td>386</td>
<td>23,102</td>
<td>5,572</td>
<td>28,674</td>
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</table>
Incentives for New Production

- Significant incentives can be provided to new production, by eliminating or reducing the Progressive Severance Tax (Gross) on any combination of:
  - Production from new areas
  - Production from new plans of development (determined through the regulatory process to be for “new production”)
  - Production above a fixed decline rate
- Here, a reduced rate of Progressive Severance Tax has been modeled, using the following parameters for new production:
  - Base rate of 0%
  - Progressivity of .05% commencing at a threshold of $65 (gross value at point of production)
  - Progressivity is capped 5%
- Following slides show a new, high-cost 10 mb/d development under
  - The regular rate
  - The reduced rate (with a time limit of 7 years)
  - The reduced rate (with no time limit)
Note on Impact of Inflation

- Under ACES, thresholds and coefficients for progressivity are specified in nominal terms, without indexation
  - As a result, when economics over the long-term rather than just 2013 are examined, we see the effects of ‘bracket creep’ or ‘stealth tax’
  - In real terms, as prices increase, thresholds for progressivity decrease, and the higher take that comes with progressivity occurs at lower and lower price levels

- Severance tax options are also currently shown assuming nominal thresholds
  - As a result, in the charts, the impact of the severance tax can be seen below the $60/$65 level at which it applies – a result of bracket-creep over the lifetime of a project

- It is strongly worth considering the application of price indexation to thresholds for progressivity
CSSB 192 (New Development)

Cash Flow Analysis - $100 ANS West Coast

Level & Composition of Government Take

Level & Composition of Relative Government Take

ANS West Coast Crude Price

Price | Royalty | Production Tax | Property Tax | State CIT | Total State Take | Federal CIT | Total GT

40 | 156% | -81% | 96% | 0% | 170% | 0% | 170%
50 | 47% | -9% | 23% | 2% | 64% | 7% | 70%
60 | 32% | 9% | 13% | 3% | 58% | 12% | 70%
70 | 26% | 20% | 9% | 3% | 59% | 13% | 72%
80 | 23% | 28% | 7% | 3% | 62% | 13% | 74%
90 | 21% | 34% | 6% | 3% | 64% | 12% | 76%
100 | 20% | 38% | 5% | 3% | 65% | 12% | 77%
110 | 19% | 41% | 4% | 3% | 67% | 11% | 78%
120 | 18% | 43% | 4% | 3% | 68% | 11% | 79%
130 | 17% | 45% | 3% | 3% | 69% | 11% | 80%
140 | 17% | 46% | 3% | 3% | 69% | 11% | 80%
150 | 17% | 47% | 3% | 3% | 69% | 11% | 80%
160 | 16% | 48% | 2% | 3% | 70% | 11% | 80%
170 | 16% | 49% | 2% | 3% | 70% | 10% | 80%
180 | 16% | 50% | 2% | 3% | 70% | 10% | 80%
190 | 16% | 50% | 2% | 3% | 70% | 10% | 81%
200 | 15% | 50% | 2% | 3% | 70% | 10% | 81%
210 | 15% | 51% | 2% | 3% | 70% | 10% | 81%
220 | 15% | 51% | 2% | 3% | 70% | 10% | 80%
230 | 15% | 51% | 2% | 3% | 70% | 10% | 80%
Severance Tax – 20% Maximum (New Producer)
.25% progressivity from $65 to $125, then .10% progressivity
Severance Tax – 20% Maximum with first 7 years at 5% (New Producer)
.25% progressivity from $65 to $125, then .10% progressivity
Severance Tax - 20% maximum (New Development)

.25% progressivity from $60 to $100, then .03% progressivity

---

**Level & Composition of Government Take**

- Severance Tax
- Federal CIT
- State CIT
- Property Tax
- Production Tax
- Royalty

**Cash Flow Analysis - $100 ANS West Coast**

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**Level & Composition of Relative Government Take**

ANW West Coast Crude Price

ANS West Coast Crude Price
Severance Tax – 20% Maximum with first 7 years at 5% (New Producer) .25% progressivity from $60 to $100, then .03% progressivity

Price | NPV | IRR
--- | --- | ---
$40 | $328 | 0%
$60 | $145 | 5%
$100 | 84 | 12%

Level & Composition of Relative Government Take

ANS West Coast Crude Price

Severance Tax
Federal CIT
State CIT
Property Tax
Production Tax
Royalty

Level & Composition of Government Take

ANS West Coast Crude Price

Severance Tax
Federal CIT
State CIT
Property Tax
Production Tax
Royalty
Severance Tax – 5% Maximum (New Producer)

Cash Flow Analysis - $100 ANS West Coast

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Price
Royalty
Severance Tax
Production Tax
Property Tax
State CIT
Total State Take
Federal CIT
Total GT

Level & Composition of Relative Government Take

ANS West Coast Crude Price
20 Year Revenue Impact of Reduced Rate for New Production (Using Severance Tax Option 1)

20 Year NPV of Cash Flows - Severance Option 1

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20 Year NPV of Cash Flows - Severance Option 2

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ANS West Coast Oil Price

Production Above Fixed Decline
Production Below Fixed Decline
**Regime Competitiveness: Relative Government Take**

Average Government Take of Global Fiscal Regimes at $60/bbl

Severance Tax - 20% maximum with 0.25% then 0.10% progressivity (Existing Producer)
Severance Tax - 20% maximum with 0.25% then 0.03% progressivity (Existing Producer)

OECD
Alaska

- Bolivia
- Syria
- Pakistan
- Uzbekistan
- Oman
- Trinidad
- Azerbaijan
- Vietnam
- Indonesia
- Turkmenistan
- Venezuela
- US - TX (Eagleford)
- Malaysia
- US - LA (Haynesville)
- Norway
- Kazakhstan
- Egypt
- Angola
- Congo, Rep. of the
- US - ND (Bakken)
- India
- China
- ACES (Existing Producer)
- CSSB 192 (Existing Producer)

- Cambodia
- Thailand
- Philippines
- Canada - Alberta Conv.
- Nigeria
- US - GOM
- Brazil
- Equatorial Guinea
- Argentina
- Gabon
- Canada - Alberta OS
- Colombia
- Denmark
- Canada - Nova Scotia
- New Zealand
- Peru
- Ireland

Average Government Take of Global Fiscal Regimes at $60/bbl

OECD
Alaska
Regime Competitiveness: Relative Government Take

Average Government Take of Global Fiscal Regimes at $80/bbl

OECD
Alaska

Syria
Uzbekistan
Bolivia
Pakistan
Oman
Trinidad
Azerbaijan
Turkmenistan
Vietnam
Indonesia
Norway
Angola
Algeria
Malaysia
Kazakhstan
Denmark
Gabon
US - GOM
Canada - Nova Scotia
Norway - OS
Nova Scotia - OS
Colombia
Equatorial Guinea
Brazil
Argentina
US - TX (Barnett)
Philippines
US - TX (conventional)
Nigeria
Libya
Canada - Alberta Conv.
US - TX (Eagleford)
CSSB 192 (Existing Producer)
ACES (Existing Producer)
Congo, Rep. of the
Russia
Severance Tax - 20% maximum with 0.25% then 0.10% progressivity (Existing Producer)
US - LA (Haynesville)
US - LA (conventional)
US - LA (Eagleford)
US - TX (Barnett)
US - TX (conventional)
Canada - Alberta Conv.
US - LA (Haynesville)
US - TX (Eagleford)
CSSB 192 (Existing Producer)
ACES (Existing Producer)
Congo, Rep. of the
Russia
Severance Tax - 20% maximum with 0.25% then 0.03% progressivity (Existing Producer)
Syria
Uzbekistan
Bolivia
Pakistan
Oman
Trinidad
Azerbaijan
Turkmenistan
Vietnam
Indonesia
Norway
Angola
Algeria
Malaysia
Kazakhstan
Denmark
Gabon
US - GOM
Canada - Nova Scotia
Norway - OS
Nova Scotia - OS
Colombia
Equatorial Guinea
Brazil
Argentina
US - TX (Barnett)
Philippines
US - TX (conventional)
Nigeria
Libya
Canada - Alberta Conv.
US - TX (Eagleford)
CSSB 192 (Existing Producer)
ACES (Existing Producer)
Congo, Rep. of the
Russia
Severance Tax - 20% maximum with 0.25% then 0.10% progressivity (Existing Producer)
US - LA (Haynesville)
US - LA (conventional)
US - LA (Eagleford)
US - TX (Barnett)
US - TX (conventional)
Canada - Alberta Conv.
US - LA (Haynesville)
US - TX (Eagleford)
CSSB 192 (Existing Producer)
ACES (Existing Producer)
Congo, Rep. of the
Russia
Severance Tax - 20% maximum with 0.25% then 0.03% progressivity (Existing Producer)
Regime Competitiveness: Relative Government Take

Average Government Take of Global Fiscal Regimes at $100/bbl

OECD

Alaska
Regime Competitiveness: Relative Government Take

Average Government Take of Global Fiscal Regimes at $120/bbl

<table>
<thead>
<tr>
<th>Country</th>
<th>Severance Tax</th>
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Severance Tax - 20% maximum with 0.25% then 0.03% progressivity (Existing Producer)
Regime Competitiveness: Relative Government Take

Average Government Take of Global Fiscal Regimes at $140/bbl

Severance Tax - 20% maximum with 0.25% then 0.10% progressivity (Existing Producer)
Severance Tax - 20% maximum with 0.25% then 0.03% progressivity (Existing Producer)
Regime Competitiveness: Relative Government Take

Average Government Take of Global Fiscal Regimes at $160/bbl

- OECD
- Alaska

Severance Tax - 20% maximum with 0.25% then 0.10% progressivity (Existing Producer)
Severance Tax - 20% maximum with 0.25% then 0.03% progressivity (Existing Producer)

CSSB 192 (Existing Producer)
ACES (Existing Producer)

Severance Tax - 20% maximum with 0.25% then 0.10% progressivity (Existing Producer)
Severance Tax - 20% maximum with 0.25% then 0.03% progressivity (Existing Producer)

Congo, Rep. of the
India
China
Thailand
US - LA (Haynesville)
Libya
Cote d'Ivoire
Argentina
Netherlands
Yemen
Egypt
US - TX (Eagleford)
Nigeria
UK
Equatorial Guinea
US - LA (conventional)
UAE
Philippines
US - ND (Bakken)
Australia
US - TX (conventional)
Canada - Alberta Conv.
Colombia
US - TX (Barnett)
Canada - Alberta OS
Brazil
Gabon
Denmark
Canada - Nova Scotia
US - GOM
New Zealand
Peru
Ireland

Regime Competitiveness: Relative Government Take

Average Government Take of Global Fiscal Regimes at $180/bbl

Countries with Severance Tax - 20% maximum with 0.25% then 0.10% progressivity (Existing Producer)
- Indonesia
- Malaysia
- Brazil
- Nigeria
- Egypt
- Yemen
- Equatorial Guinea

Countries with Severance Tax - 20% maximum with 0.25% then 0.03% progressivity (Existing Producer)
- Canada - Alberta Conv.
- UAE
- US - LA (conventional)
- India
- China
- Libya
- Argentina
- Cote d'Ivoire
- US - LA (Haynesville)
- Netherlands

Average Government Take of Global Fiscal Regimes at $180/bbl
- OECD: 50%
- Alaska: 30%
Regime Competitiveness: Relative Government Take

Average Government Take of Global Fiscal Regimes at $200/bbl

- OECD
- Alaska

Severance Tax - 20% maximum with 0.25% then 0.10% progressivity (Existing Producer)
- India
- Severance Tax - 20% maximum with 0.25% then 0.03% progressivity (Existing Producer)
- Congo, Rep. of the
- China
- Libya
- Argentina
- Equatorial Guinea
- Cote d’Ivoire
- Netherlands
- US - LA (Haynesville)
- Yemen
- Egypt
- Nigeria
- UK
- US - TX (Eagleford)
- US - LA (conventional)
- UAE
- Philippines
- Australia
- Colombia
- US - TX (conventional)
- US - ND (Bakken)
- Canada - Alberta Conv.
- US - TX (Barnett)
- Canada - Alberta OS
- Brazil
- Gabon
- Denmark
- Canada - Nova Scotia
- US - GOM
- New Zealand
- Peru
- Ireland
Regime Competitiveness: Relative Government Take

Average Government Take of Global Fiscal Regimes at $80/bbl

- OECD
- Alaska

Severance Tax - 5% maximum (New Development)
- Thailand
- US - ND (Bakken)
- Cote d'Ivoire
- Netherlands
- Yemen
- US - LA (conventional)
- Egypt
- Australia
- UK
- UAE
- Canada - Alberta Conv.
- Libya
- Nigeria
- US - TX (conventional)
- Philippines
- US - TX (Barnett)
- Argentina
- Brazil
- Equatorial Guinea
- Colombia
- Canada - Alberta GS
- US - GOM
- Gabon
- Denmark
- Canada - Nova Scotia
- New Zealand
- Peru
- Ireland

Severance Tax - 20% maximum with 0.25% then 0.03% progressivity (New Development)
- Angola
- Korea
- Malaysia
- Kazakhstan
- Venezuela

Severance Tax - 20% maximum with 5% Maximum for 7 Years (New Development)
- Congo, Rep. of the
- US - TX (Eagleford)
- US - LA (Haynesville)
- Russia
- China
- India

Severance Tax - 20% maximum with 0.25% then 0.03% progressivity (New Development)
- US - LA (Eagleford)
- US - TX (Barnett)
- Argentina
- Brazil
- Equatorial Guinea
- Colombia
- Canada - Alberta GS
- US - GOM
- Gabon
- Denmark
- Canada - Nova Scotia
- New Zealand
- Peru
- Ireland

Severance Tax - 5% maximum (New Development)
- Thailand
- US - ND (Bakken)
- Cote d'Ivoire
- Netherlands
- Yemen
- US - LA (conventional)
- Egypt
- Australia
- UK
- UAE
- Canada - Alberta Conv.
- Libya
- Nigeria
- US - TX (conventional)
- Philippines
- US - TX (Barnett)
- Argentina
- Brazil
- Equatorial Guinea
- Colombia
- Canada - Alberta GS
- US - GOM
- Gabon
- Denmark
- Canada - Nova Scotia
- New Zealand
- Peru
- Ireland

Average Government Take of Global Fiscal Regimes at $80/bbl

OECD
Alaska
Average Government Take of Global Fiscal Regimes at $100/bbl

Severance Tax - 20% maximum with 5% Maximum for 7 Years (New Development)
Severance Tax - 20% maximum with 0.25% then 0.03% progressivity (New Development)

OECD
Alaska
Regime Competitiveness: Relative Government Take

Average Government Take of Global Fiscal Regimes at $120/bbl

- Uzbekistan
- Syria
- Pakistan
- Azerbaijan
- Oman
- Turkmenistan
- ACES (New Development)
- Bolivia
- Trinidad
- CSSB 192 (New Development)
- Angola
- Algeria
- Norway
- Vietnam
- Kazakhstan
- Indonesia
- Venezuela
- Malaysia
- Thailand
- Russia
- Congo, Rep. of the
- India
- China
- Severance Tax - 20% maximum with 5% Maximum for 7 Years (New Development)
- Severance Tax - 20% maximum with 0.25% then 0.03% progressivity (New Development)
- Congo, Rep. of the
- Severance Tax - 5% maximum (New Development)
- US - LA (Haynesville)
- US - TX (Eagleford)
- Cote d’Ivoire
- Netherlands
- Yemen
- Egypt
- Libya
- US - LA (conventional)
- UK
- Nigeria
- Argentina
- US - ND (Bakken)
- UAE
- Australia
- Philippines
- US - TX (conventional)
- Canada - Alberta Conv.
- US - TX (Barnett)
- Equatorial Guinea
- Colombia
- Canada - Alberta GS
- Brazil
- Gabon
- Denmark
- Canada - Nova Scotia
- US - GOM
- New Zealand
- Peru
- Ireland

Severance Tax - 20% maximum with 5% Maximum for 7 Years (New Development)

OECD
Alaska

Average Government Take of Global Fiscal Regimes at $120/bbl

- OECD
- Alaska
Regime Competitiveness: Relative Government Take

Average Government Take of Global Fiscal Regimes at $140/bbl

- Uzbekistan
- Syria
- Azerbaijan
- Turkmenistan
- ACES (New Development)
- Oman
- Pakistan
- CSSB 192 (New Development)
- Angola
- Trinidad
- Algeria
- Bolivia
- Norway
- Vietnam
- Kazakhstan
- Venezuela
- Indonesia
- Malaysia
- Russia
- Congo, Rep. of the
- India
- China
- Severance Tax - 20% maximum with 5% Maximum for 7 Years (New Development)
- Severance Tax - 20% maximum with 0.25% then 0.03% progressivity (New Development)
- Colombia
- US - LA (Eagleford)
- Libya
- Yemen
- Egypt
- Argentina
- UK
- Nigeria
- US - LA (conventional)
- UAE
- Thailand
- US - ND (Bakken)
- Equatorial Guinea
- Australia
- Philippines
- US - TX (conventional)
- Canada - Alberta Conv.
- US - TX (Barnett)
- Colombia
- Canada - Alberta CS
- Brazil
- Gabon
- Denmark
- Canada - Nova Scotia
- US - GOM
- New Zealand
- Peru
- Ireland

Severance Tax - 5% maximum (New Development)

Severance Tax - 20% maximum with 0.25% then 0.03% progressivity (New Development)

OECD

Alaska
Regime Competitiveness: Relative Government Take

Average Government Take of Global Fiscal Regimes at $180/bbl

Regime Competitiveness: Relative Government Take

Average Government Take of Global Fiscal Regimes at $200/bbl

Severance Tax - 20% maximum with 0.25% then 0.03% progressivity (New Development)
Severance Tax - 20% maximum with 5% Maximum for 7 Years (New Development)
Severance Tax - 5% maximum (New Development)
Equatorial Guinea
Cote d’Ivoire
Netherlands
US - LA (Haynesville)
Yemen
Egypt
Nigeria
UK
US - TX (Eagleford)
US - LA (conventional)
UAE
Philippines
Australia
Colombia
US - TX (conventional)
US - ND (Bakken)
Canada - Alberta Conv.
US - TX (Barnett)
Canada - Alberta GOM
Brazil
Gabon
Denmark
Canada - Nova Scotia
US - GOM
New Zealand
Peru
Ireland

OECD
Alaska

Average Government Take of Global Fiscal Regimes at $200/bbl

OECD
Alaska
ACES (Existing Producer)

Cash Flow Analysis - $100 ANS West Coast

Level & Composition of Government Take

Level & Composition of Relative Government Take

<table>
<thead>
<tr>
<th>Price</th>
<th>Royalty</th>
<th>Production Tax</th>
<th>Property Tax</th>
<th>State CIT</th>
<th>Total State Take</th>
<th>Federal CIT</th>
<th>Total GT</th>
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<td>2%</td>
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</tbody>
</table>
Severance Tax - 20% maximum (Existing Producer)
.25% progressivity from $65 to $125, then .10% progressivity

Cash Flow Analysis - $100 ANS West Coast

Price   NPV
$40    $ 3,209
$60    $ 8,458
$100   $16,757

Level & Composition of Government Take

Level & Composition of Relative Government Take

ANS West Coast Crude Price

Price
40 32% 9% 5% 51% 17% 69%
50 24% 14% 3% 47% 18% 67%
60 21% 16% 2% 44% 18% 67%
70 19% 18% 2% 43% 18% 67%
80 16% 18% 1% 42% 18% 68%
90 17% 19% 1% 42% 18% 69%
100 17% 19% 1% 41% 18% 70%
110 16% 20% 1% 41% 18% 71%
120 16% 20% 1% 40% 18% 72%
130 15% 20% 1% 40% 18% 72%
140 15% 20% 1% 40% 18% 72%
150 15% 20% 1% 40% 18% 72%
160 15% 20% 1% 40% 18% 72%
170 15% 21% 1% 40% 18% 72%
180 14% 21% 1% 39% 18% 72%
190 14% 21% 1% 39% 18% 72%
200 14% 21% 1% 39% 18% 72%
210 14% 21% 0% 39% 18% 72%
220 14% 21% 0% 39% 18% 72%
230 14% 21% 0% 39% 18% 72%

ANS West Coast Crude Price

Severance Tax
Federal CIT
State CIT
Property Tax
Production Tax
Royalty
Severance Tax - 20% maximum (Existing Producer) .25% progressivity from $60 to $100, then .03% progressivity

<table>
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<th>Severance Tax</th>
<th>Federal CIT</th>
<th>State CIT</th>
<th>Property Tax</th>
<th>Production Tax</th>
<th>Royalty</th>
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Level & Composition of Government Take

- Severance Tax
- Federal CIT
- State CIT
- Property Tax
- Production Tax
- Royalty

Level & Composition of Relative Government Take

- Severance Tax
- Federal CIT
- State CIT
- Property Tax
- Production Tax
- Royalty