EMPIRE
VALUATION CONSULTANTS

# Five Things You May Not Have Thought of

## (PPA/ASC 805 Valuations)

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# Presentation Outline

- Estimating Future Customer Revenues/Growth
  - Reconciling historical data to PFI
- Estimating Future Customer Profit Margins
  - Corresponding G&A addback to sales/marketing addback
- Non-compete probabilities
  - –- Probability of leaving but not competing and impact on conditional probabilities
- Impact of acquired working capital deficits/surpluses
  - Impact on IRR, contributory asset charges, WARA
- Applying a technology charge to customers using a royalty rate
  - Comparison to overall R&D costs and avoiding double-counting the charge
- Q&A (time permitting)

# Introduction

- The following slides are nothing more than one person's observations and means of handling certain PPA issues
- They are my, and mine only, opinions (not ASA, PwC, or others). While I have generally had success with these approaches, use them at your own risk!
- Other obvious warnings:

# Developing Projections, a Few Quotes

- **For every complex problem there is a simple solution that is wrong**
  - *–G.B. Shaw 1856-1950, Irish critic and poet*
- **… we shall never be able to escape from the ultimate dilemma that all our knowledge is about the past, and all our decisions are about the future**
  - *–Ian Wilson, American scenario planning expert and strategy consultant*
- **It's not what you look at that matters, it's what you see.**
  - *–Henry David Thoreau, American author and poet*
- **Prediction is very difficult, especially if it's about the future.**
  - *– Niels Bohr, Danish physicist*

# Estimating Customer Growth

- There are many ways to project future customer revenues.
- Focus here is one component of these calculations:
  - Reconciling customer growth assumptions with the PFI for the company
- Assumption #1: You estimate customer growth separate from attrition
- Assumption #2: Client did not provide projected revenues from existing customers

# Estimating Customer Growth (cont.)

- Sometimes we rely too much on historical analyses
- Often customer revenues (pre-attrition) are increased at a uniform, fairly low rate, for example:

**Projected Customer Revenues Pre-Attrition**

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Etc. |
|---|---|---|---|---|---|---|
| Revenues | 100,000 | 101,000 | 102,010 | 103,030 | 104,060 | → |
| % Change | | 1.00% | 1.00% | 1.00% | 1.00% | → |

- This analysis could be right, but in certain cases will not be. Let's explore this a little more…

# Est. Customer Growth - Warning Signs

- Projected growth is higher than historical growth
- Sales increases largely tied to new products/services
  - aka “Leveraging a Platform”
- Finite number of customers
- For example….

# Estimating Customer Growth (cont.)

| | History Year -5 | History Year -4 | History Year -3 | History Year -2 | History Year -1 | Avg. | Median |
|---|---|---|---|---|---|---|---|
| Cust. Revenues (Yr. -5) | 75,000 | 78,000 | 79,000 | 82,950 | 85,000 | | |
| % Change | | 4.0% | 1.3% | 5.0% | 2.5% | 3.2% | 3.0% |
| # Customers (Yr. -5) | 25 | 25 | 24 | 24 | 23 | | |
| # Customers (Current Yr) | 25 | 25 | 25 | 26 | 26 | | |
| Revenue/Yr-5 Customer | 3,000 | 3,120 | 3,292 | 3,456 | 3,696 | | |
| % Change | | 4.0% | 5.5% | 5.0% | 6.9% | 5.4% | 5.7% |

- Projected growth for existing customers should be in the 3.0% to 6.0% range right?
- Maybe not!

# Estimating Customer Growth (cont.)

- What if projected growth is higher than in the past?
- What if the company is launching a major new project and sales are expected to increase as follows:
  - Year One: 30%
  - Year Two: 20%
  - Year Three: 10%
  - Year Four: 6%
  - Year Five and Beyond: 3%
- One would expect much higher than 3% in the earlier years
- One solution is to estimate the % of total growth attributable to existing customers and apply that to future growth estimates

# Estimating Customer Growth (cont.)

| | History Year -5 | History Year -4 | History Year -3 | History Year -2 | History Year -1 | Avg. | Median |
|---|---|---|---|---|---|---|---|
| Cust. Revenues (Yr. -5) | 75,000 | 78,000 | 79,000 | 82,950 | 85,000 | | |
| % Change | | 4.0% | 1.3% | 5.0% | 2.5% | 3.2% | 3.0% |
| # Customers (Yr. -5) | 25 | 25 | 24 | 24 | 23 | | |
| # Customers (Current Yr) | 25 | 25 | 25 | 26 | 26 | | |
| Revenue/Yr-5 Customer | 3,000 | 3,120 | 3,292 | 3,456 | 3,696 | Avg. | Median |
| % Change | | 4.0% | 5.5% | 5.0% | 6.9% | 5.4% | 5.7% |
| Company Revenues | 75,000 | 78,000 | 80,730 | 84,767 | 88,157 | | |
| % Change | | 4.0% | 3.5% | 5.0% | 4.0% | | |
| Total Revenue Increase | | 3,000 | 2,730 | 4,037 | 3,391 | | |
| Yr. -5 Revenue Increase | | 3,000 | 1,000 | 3,950 | 2,050 | Avg. | Median |
| Yr. -5 Incr. % Total | | 100.0% | 36.6% | 97.9% | 60.5% | 73.7% | 67.2% |

# Estimating Customer Growth (cont.)

| | Projected Year +1 | Projected Year +2 | Projected Year +3 | Projected Year +4 | Projected Year +5 |
|---|---|---|---|---|---|
| Projected Co. Revenues | 114,604 | 137,525 | 151,278 | 160,354 | 165,165 |
| % Change | 30.0% | 20.0% | 10.0% | 6.0% | 3.0% |
| Existing Cust. Revenues | 106,670 | 121,604 | 130,116 | 135,581 | 138,428 |
| (=70% co. growth rate) | 21.0% | 14.0% | 7.0% | 4.2% | 2.1% |
| Existing Cust. Revenues (=5%/yr to year 4) | 92,565 | 97,193 | 102,053 | 107,156 | 110,370 |
| Difference | 14,105 | 24,411 | 28,063 | 28,426 | 28,058 |

# Estimating Customer Growth (cont.)

- Failure to reconcile historical and future growth trends can significantly misstate customer revenues
- Previous examples were kept simple to illustrate the key point. Analysis incomplete.
  - –- For example, what type of attrition to assume, especially if some of the growth calculations include historical attrition
- The following slide illustrates how the simple calculation reconciles revenues between new and existing customers

# Estimating Customer Growth (cont.)

Customer Reconciliation

| | | | | | | |
|---|---|---|---|---|---|---|
| Projected Co. Revenues | | 114,604 | 137,525 | 151,278 | 160,354 | 165,165 |
| Proj. Co. Revenue Incr. | | 30.0% | 20.0% | 10.0% | 6.0% | 3.0% |
| Proj. Revenue Increase | | 26,447 | 22,921 | 13,753 | 9,077 | 4,811 |
| % Attributable to Exist. | | 70.0% | 70.0% | 70.0% | 70.0% | 70.0% |
| % Attributable to New | | 30.0% | 30.0% | 30.0% | 30.0% | 30.0% |
| | | | | | | |
| Rev. Attrib. Existing Cust | | 18,513 | 16,045 | 9,627 | 6,354 | 3,367 |
| Rev. Attrib. New Cust | | 7,934 | 6,876 | 4,126 | 2,723 | 1,443 |
| | | | | | | |
| Acquired Customers | 88,157 | 106,670 | 121,604 | 130,116 | 135,581 | 138,428 |
| Cust. Acq. Year One | - | 7,934 | 9,045 | 9,678 | 10,085 | 10,296 |
| Cust. Acq. Year Two | - | - | 6,876 | 7,358 | 7,667 | 7,828 |
| Cust. Acq. Year Three | - | - | - | 4,126 | 4,299 | 4,389 |
| Cust. Acq. Year Four | - | - | - | - | 2,723 | 2,780 |
| Cust. Acq. Year Five | - | - | - | - | - | 1,443 |
| | 88,157 | 114,604 | 137,525 | 151,278 | 160,354 | 165,165 |
| | | | | | | |
| Acq. Customer Growth | | 21.0% | 14.0% | 7.0% | 4.2% | 2.1% |

# Estimating Customer Profit Margins

- Part of valuing customers is estimating a profit margin
- Requires add back of expenses related to existing customers
- One common addback is for sales and marketing expenses for customer acquisition
- However, often ancillary costs are ignored
- For example, G&A expenses likely would be lower also if less staff needed to service existing customers
- Impact can be significant if cash flow/% revenue low
- The following illustrates this adjustment

# Estimating Customer Profit Margins (cont.)

Projected company margins:

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|
| Revenues | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| COGS | 77.0% | 77.0% | 76.0% | 75.0% | 75.0% |
| Sales and marketing | 8.0% | 8.0% | 8.0% | 8.0% | 8.0% |
| General and administrative | 10.0% | 10.0% | 10.0% | 10.0% | 10.0% |
| Depreciation | 2.0% | 2.0% | 2.0% | 2.0% | 2.0% |
| **Company EBIT** | **3.0%** | **3.0%** | **4.0%** | **5.0%** | **5.0%** |

# Estimating Customer Profit Margins (cont.)

Estimating addbacks:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Sales and mkt addback @** | **75.0%** | **6.0%** | **6.0%** | **6.0%** | **6.0%** | **6.0%** | **[a]** |
| Operating Costs (COGS, S&M) | | 85.0% | 85.0% | 84.0% | 83.0% | 83.0% | [b] |
| Addback as % Operating Costs | | 7.1% | 7.1% | 7.1% | 7.2% | 7.2% | [a]/[b]=[c] |
| General and administrative | | 10.0% | 10.0% | 10.0% | 10.0% | 10.0% | [d] |
| **General and admin. addback** | | **0.7%** | **0.7%** | **0.7%** | **0.7%** | **0.7%** | **=[c]*[d]** |

# Estimating Customer Profit Margins (cont.)

Projected customer profit margins:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Company EBIT** | | **3.0%** | **3.0%** | **4.0%** | **5.0%** | **5.0%** | **[a]** |
| Sales and mkt addback @ | 75.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | [b] |
| General and admin. addback | | 0.7% | 0.7% | 0.7% | 0.7% | 0.7% | [c] |
| **Customer profit margin** | | **9.7%** | **9.7%** | **10.7%** | **11.7%** | **11.7%** | **=[a+b+c]** |
| **Margin Incr. Due to G&A Adj.** | | **7.8%** | **7.8%** | **7.1%** | **6.6%** | **6.6%** | **=[c]/[a+b]** |

# Estimating Customer Profit Margins (cont.)

- Notes: On potential G&A adjustment
  - Client may provide the data you need
  - Assess materiality
  - Understand what is included in each expense category
  - Some G&A costs may be excluded from the calculation

# Non-compete Probabilities

- Valuing a non-compete involves:
  - Determining certain scenarios of competition
  - Estimating the impact of competition
  - Estimating the probability of competition
- Discussion here focuses on non-compete probabilities
- Probabilities should consider likelihood of departure, <u>not just as a competitor but also for other reasons</u>
- Ignoring this factor often will overstate the non-compete value

# Non-compete Probabilities (cont.)

- For a multi-year non-compete, multiple scenarios should be considered
- For each subsequent scenario, conditional probabilities should be estimated
  - These probabilities account for the fact that the event may have already occurred
  - E.g., if probability each year is 50%, conditional probability in year two is 25.% (0.50*0.50), year three is 12.5% (0.50*0.50*0.50), etc.
- Conditional probabilities should consider both probabilities of departure (direct competition or no direct competition)

# Non-compete Probabilities (cont.)

- An executive departing but not competing is common
- Examples of departure but no direct competition include
  - –- Executive works for company in a different niche
  - –- Executive works in a different geographic location
  - –- Executive has a track record of working in different industries
  - –- Executive works in a reduced capacity
  - –- Executive retires
- Often non-compete analyses assume only a probability of departure in direct competition (IDC)
- Including a probability of departure not in direct competition (NIDC) is more accurate for a multi-scenario non-compete analysis

# Non-compete Probabilities (cont.)

- Assume the following fact pattern:
- Five year non-compete
- Five scenarios (immediate, after one year, two years, etc.)
- Probability of departure per year is 25%
- Probability of joining a competitor if departed is 50%

# Non-compete Probabilities (cont.)

Estimating Conditional Probabilities Including Departure NIDC:

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | |
|---|---|---|---|---|---|---|
| Probability of Departure | 25.0% | 25.0% | 25.0% | 25.0% | 25.0% | [a] |
| Probabillity of Direct Competition | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% | [b] |
| Conditional Probability | 12.5% | 12.5% | 12.5% | 12.5% | 12.5% | [a*b]=[c] |
| Survival Factor - Departure | 1.0000 | 0.7500 | 0.5625 | 0.4219 | 0.3164 | [d] |
| **Net Conditional Probability** | **12.5%** | **9.4%** | **7.0%** | **5.3%** | **4.0%** | **[c*d]** |

# Non-compete Probabilities (cont.)

What about providing a combined probability?

- There are two problems with this
- First, estimating a combined probability may oversimplify and lead to an estimate that is too imprecise
  - For example, how likely is it that a 12.5% probability (25% probability of departure, 50% probability departure IDC)
- Second, doing so results in a flat-out wrong answer for a multi-scenario analysis
  - Let's Illustrate….

# Non-compete Probabilities (cont.)

- Assume a similar fact pattern as previously:
- Five year non-compete
- Five scenarios (immediate, after one year, two years, etc.)
- Probability of departure per year is 25%
- Probability of joining a competitor if departed is 50%
- Lost cash flow for each scenario (PV) the same
- However, instead of assuming separate probabilities of departure and competition, a combined probability of 12.5% (0.25 x 0.50) is assumed

# Non-compete Probabilities (cont.)

Conditional Probabilities, Ignoring Probability NIDC:

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | |
|---|---|---|---|---|---|---|
| Probability of Direct Competition | 12.5% | 12.5% | 12.5% | 12.5% | 12.5% | [a] |
| Survival Factor - Departure | 1.0000 | 0.8750 | 0.7656 | 0.6699 | 0.5862 | [b] |
| **Net Conditional Probability** | **12.5%** | **10.9%** | **9.6%** | **8.4%** | **7.3%** | **[a*b]** |

# Non-compete Probabilities (cont.)

Difference each year based on treatment of departure NIDC:

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|
| Net Conditional Probability (including departure NIDC) | 12.5% | 9.4% | 7.0% | 5.3% | 4.0% |
| Net Conditional Probability (ignoring departure NIDC) | 12.5% | 10.9% | 9.6% | 8.4% | 7.3% |
| **Probability Differential** | **0.0%** | **-1.6%** | **-2.5%** | **-3.1%** | **-3.4%** |
| **% Overstatement of Probability** | **0.0%** | **16.7%** | **36.1%** | **58.8%** | **85.3%** |

# Non-compete Probabilities (cont.)

- Considerations in Including departure NIDC factor
  - Materiality
  - Number of Scenarios Assumed in Analysis
  - Low likelihood of departure NIDC

# Working Capital estimates - IRR

- Guidance is given in the Contributory Asset Guide ("CAG") regarding treatment of working capital
- The CAG is clear that normalized levels of working capital should be considered
- Sometimes there is a large working capital deficit or surplus assumed (based on assets/liabilities assumed)
- If you do not have projected working capital, an estimate must be prepared based on market participant data and management discussions
- If so, the working capital gap should be corrected in the IRR so a normalized level is reached, either in year one of the projections or as a non-operating asset/liability
- Do not be afraid to do this!

# Working capital estimates - IRR (cont.)

Key Assumptions:

| | |
|---|---|
| Acquired working capital | 250 |
| Normalized wkg cap/sales | 10.0% |

| | Year -1 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|---|
| Projected Revenues | 95,000 | 100,000 | 112,000 | 125,000 | 138,000 | 150,000 |
| Beginning Working Capital Balance | | 250 | 10,000 | 11,200 | 12,500 | 13,800 |
| Ending Working Capital Balance | | 10,000 | 11,200 | 12,500 | 13,800 | 15,000 |
| Projected CF - Working Capital Change | | (9,750) | (1,200) | (1,300) | (1,300) | (1,200) |

Alternative is add a working capital deficit value separately as a non-operating item

Correct working capital change is (9,750), not 10% of the sales increase or (500)

Has a sizable impact on IRR

# Working Capital – Charges/WARA

- A normalized level of working capital should be assumed when calculating CACs
- This adjustment should also be made to the WARA as well
- Typically would expect similar value for CAC and WARA calculation
- If assume reversion to a normalized level of working capital in year one, no need to calculate working capital charges on a year by year basis as the answer will be same each year

# Valuing Customers w/Technology

- Some valuations involve situations where both customers and technology are important
- Over the years it has been beaten into our heads to not "cross the streams"
- In other words, there should be no overlap of cash flows between the two assets
- What if they did overlap?
- Remember the movie Ghostbusters?

# Valuing Customers w/Technology

Dr. Egon Spengler: Don't cross the streams.

Dr. Peter Venkman: Why?

Dr. Egon Spengler: It would be bad.

Dr. Peter Venkman: I'm fuzzy on the whole good/bad thing. What do you mean, "bad"?

Dr. Egon Spengler: **Try to imagine all life as you know it stopping instantaneously and every molecule in your body exploding at the speed of light**

# Valuing Customers w/Technology

- One solution to avoid “crossing the streams” is to value the customers using a multi-period excess earnings method (MPEEM) and value the technology using a relief from royalty method
- If applicable this method is useful in that it is intuitive, fairly easy to follow, and avoids and overlap of cash flow
- However, one adjustment can be overlooked when valuing the customers using the MPEEM
- If costs to maintain/replenish the existing technology are included in the projections, there is some overlap/double-counting of these costs and the technology charge applied
- One solution is to extract these costs from the projections and leave the technology charge alone

# Thank You!

- Please feel free to ask any questions after the session or you can contact me:

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