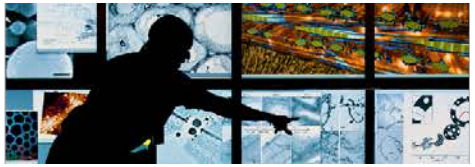
NREL
NATIONAL RENEWABLE ENERGY LABORATORY

# Hydrogen Financial Analysis Scenario Tool (H2FAST)



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***HTAC Meeting – April 21-22, 2015***

NREL is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, operated by the Alliance for Sustainable Energy, LLC.

# Overview

- **Hydrogen Financial Analysis Simulation Tool (H2FAST)**
- H2FAST is a standard financial accounting framework applied to the DOE's H2A cost analysis models
- There are three ways H2FAST has been implemented:

**H2FAST: Web** — **H2FAST Web**

**H2FAST: Excel** — **H2FAST Excel**

  – The excel spreadsheet is downloaded from the website, and provides more detailed inputs and capabilities for a more advanced end-user

**H2FAST: BCS (Business Case Scenario tool)** — **BCS Vis**

  – Full supply chain results are currently being used internally by the H2USA IFWG for scenario exploration (using Scenerio Evaluation, Regionalization & Analysis [SERA] model outputs)

  – This presentation shows one **visualization** option for BCS

# Goals and Audience for H2FAST

**Goals**

•Inform investment decisions by providing end-users an industry-grade tool to explore the financial aspects of the following:

- One hydrogen station or multiple hydrogen stations
- Broader hydrogen infrastructure network developments

**Audience**

•Financial analysts at firms engaging in hydrogen projects

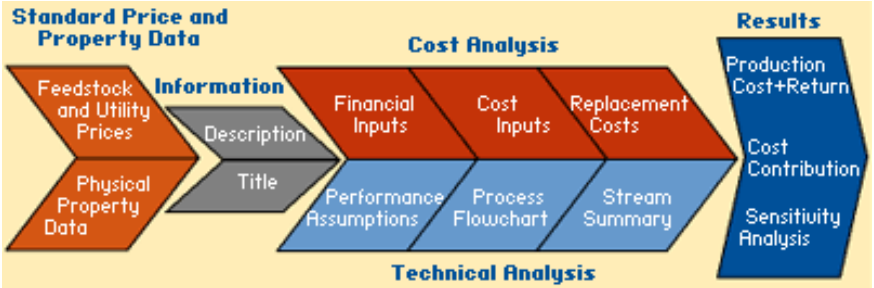
•Government agencies considering support for hydrogen stations (Governor's offices, state energy offices, municipalities, etc.)

•Stakeholders partnering on projects with multiple parties

# What does H2FAST do? How does it work?

**H2FAST provides a quick and convenient in-depth financial analysis for hydrogen stations**

- H2FAST builds upon the DOE H2A discounted cash flow framework, with more extensive post-processing to report on a range of financial performance metrics of interest to investors.
- H2FAST calculations conform to generally accepted accounting practices (GAAP) and use either default values or user inputs.




**H2A Discounted Cash Flow Framework**

***A business sector end-user will have less time to access relevant financial information than a typical H2A model end-user***

# What types of questions can H2FAST help to answer?

- **H2FAST: Web**
  - How will a $1 million capital incentive change the outlook for our station project?
  - What if we gain $10,000 per year (~$30/day) in additional convenience store sales due to hydrogen customers?
- **H2FAST: Excel**
  - What if our demand ramp-up rate is sluggish the first couple years, but then increases rapidly in the 4$^{th}$ year?
  - What if we put $5 million into a project with 7 stations?
- **H2FAST: BCS-Vis**
  - What kind of investments and incentives would be needed for a network of stations covering an entire metropolitan area or region?
  - How can we prioritize investments in one region or city compared to another?

# H2FAST WEB

**H2FAST Web**

# H2FAST Screenshot

**H2FAST Web**

Links to Download Spreadsheet Version

Embed widget

Change Graphical Output metrics

**Introductory Language**

**Inputs**

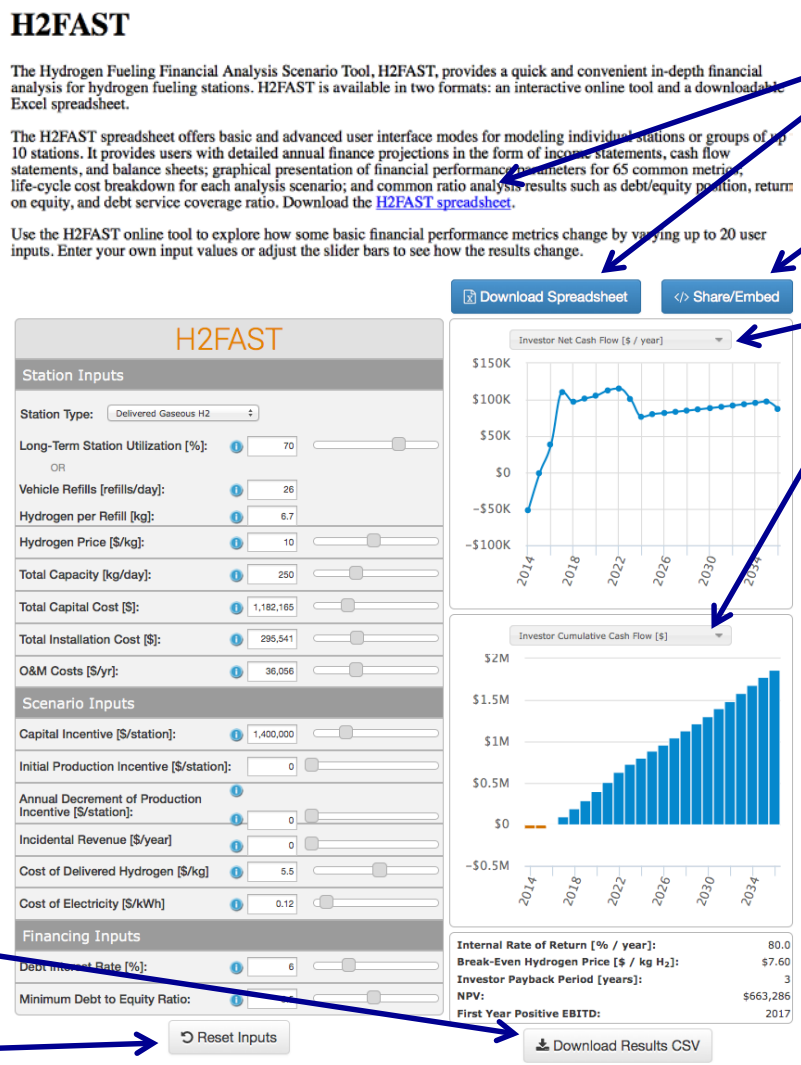
**Graphical Outputs (1)**

**Graphical Outputs (2)**

**Single Value Results**

Download full financials for case

Reset Inputs




H2FAST Website: www.nrel.gov/hydrogen/h2fast/

H2FAST Web

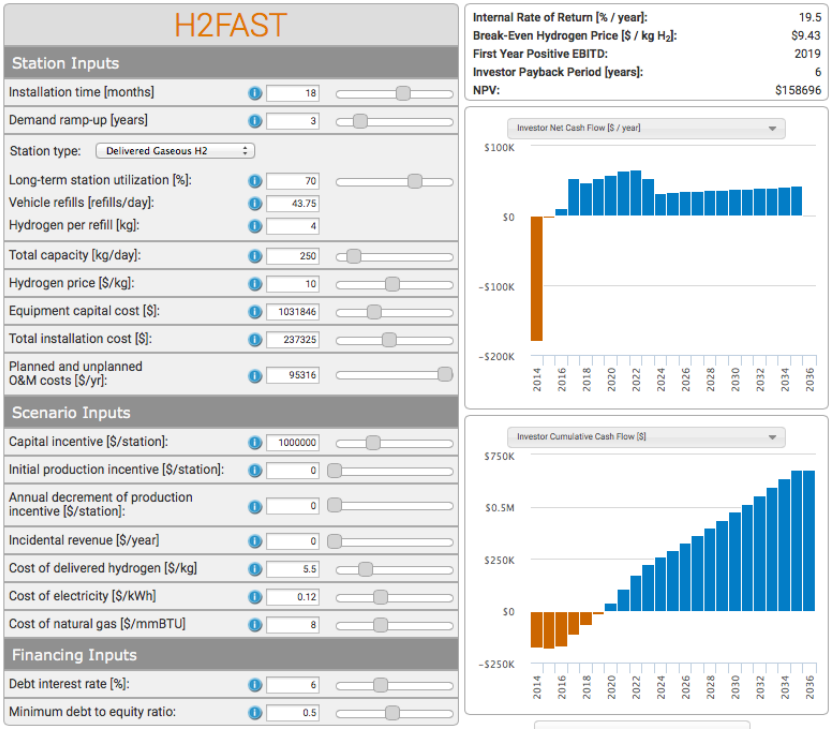
# List of H2FAST Web Inputs

**Many other inputs and outputs are possible. This set of inputs and outputs has been reviewed by the H2USA IFWG and other reviewers.**

<u>Station Inputs</u>
Utilization (%) or
Vehicles Refills (per day)
Hydrogen per Refill (kg)
Hydrogen Price ($/kg)
Total Capacity (kg/day)
Total Capital Cost ($)
Total Installation Cost ($)
O&M Cost ($/yr)

<u>Financing Inputs</u>
Debt Interest Rate (%)
Min Debt/Equity Ratio

<u>Scenario Inputs</u>
Capital Incentive ($/stn)
Initial Production Incentive ($/stn)
Annual Decrement of Production Incentive ($/stn)
Incidental Revenue ($/yr)
Cost of Delivered Hydrogen ($/kg)
Cost of Electricity ($/kWh)

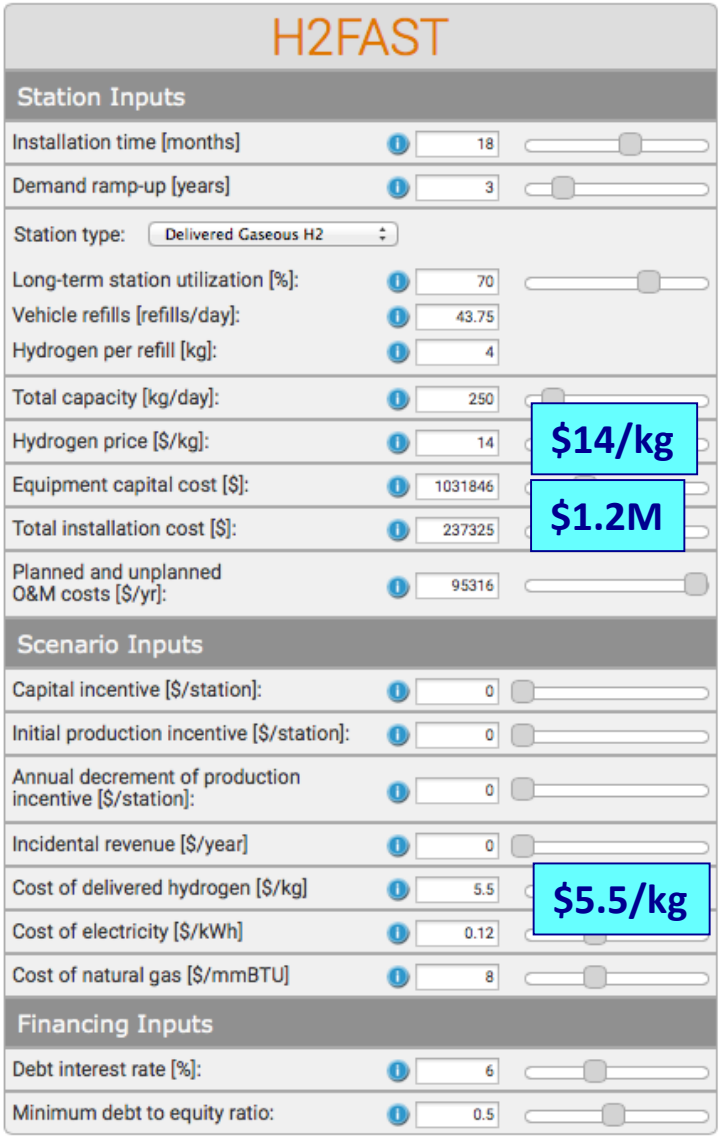



- Inputs values can be changed with cell entries or sliders
- Graphed results update automatically at right

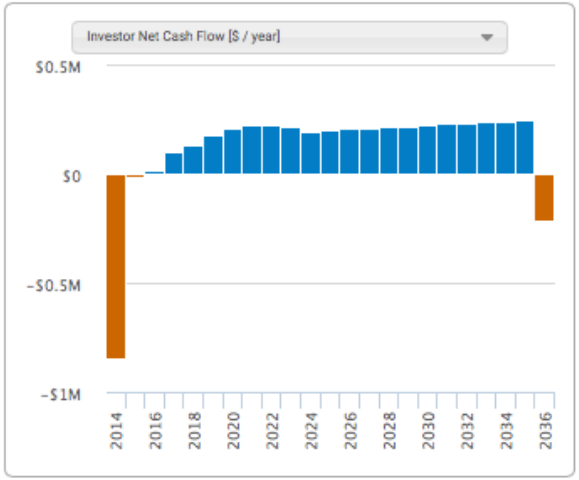
# **Example Case A**: $1.2 M station, no subsidy, $14/kg price at the pump

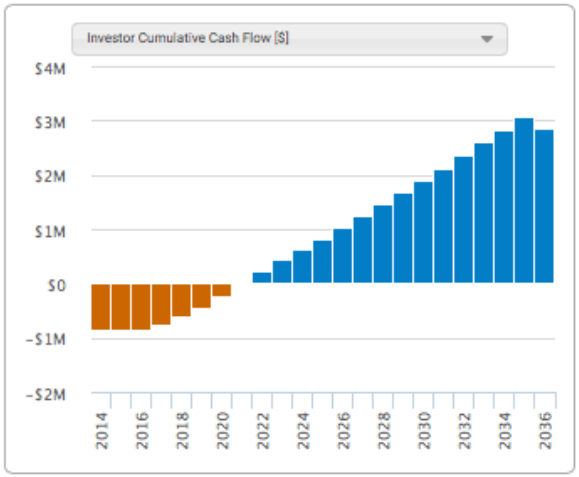
**15% IRR, 8 yr investor payback**

- A nominal gaseous tank truck delivery station: 250 kg/day
- $1.2 million in capital and installation
- Hydrogen delivered for $5.50/kg and sold for $14/kg
- Top graph shows net investor cash flow; Bottom graph shows cumulative
- Result: $12.4/kg as breakeven price for a 10% IRR




| | |
|---|---|
| Internal Rate of Return [% / year]: | 15.1 |
| Break-Even Hydrogen Price [$ / kg $H_2$]: | $12.37 |
| First Year Positive EBITD: | 2017 |
| Investor Payback Period [years]: | 8 |
| NPV: | $450256 |

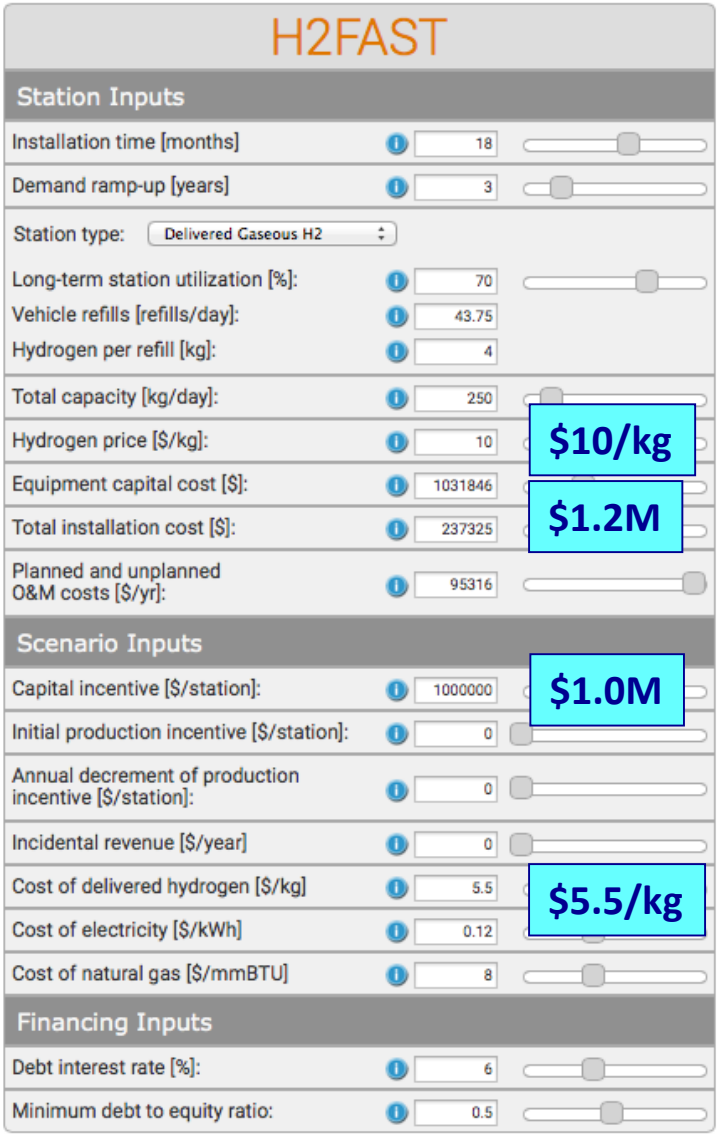


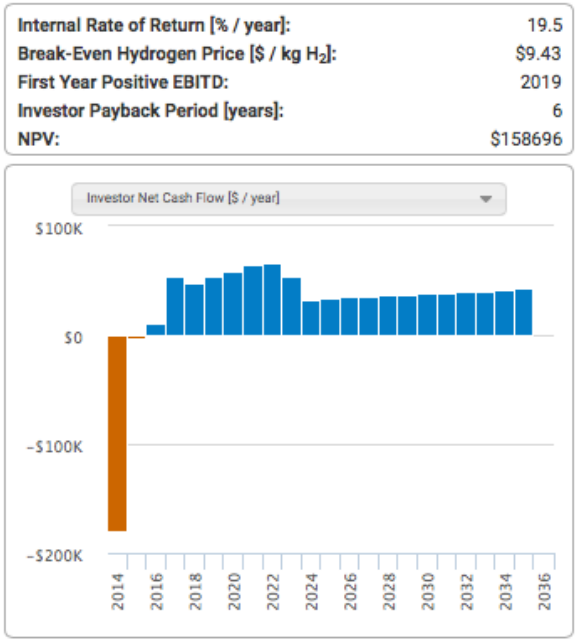



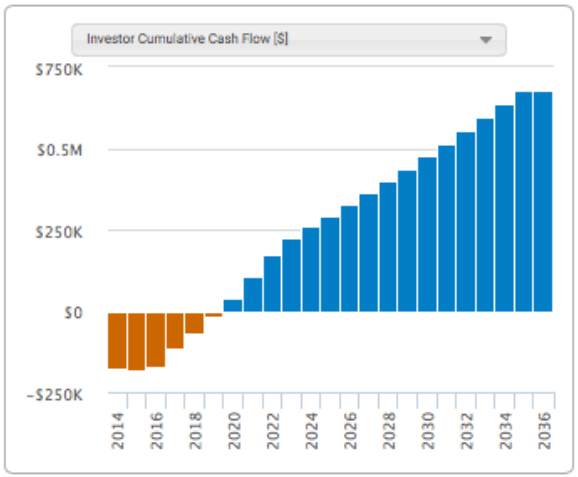
# **Example Case B**: Assume a $1.0 M Capital Incentive and $10/kg price

**19.5% IRR, 6 yr investor payback**

- Assume $1 M capital incentive in the first year
- Change pump price to $10 per kg
- Increase in IRR and investor payback period
- Result: $9.4/kg as breakeven price for a 10% IRR



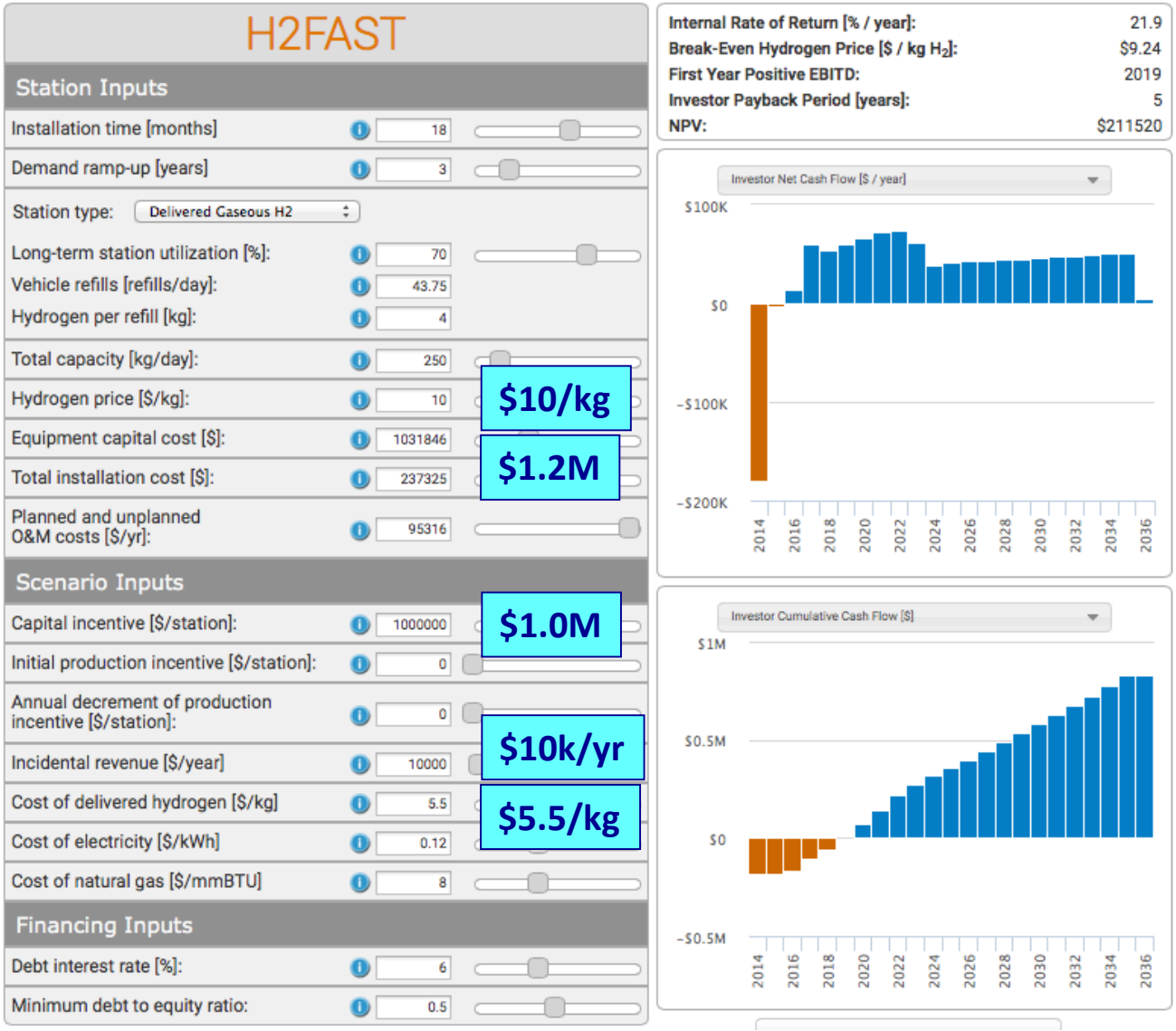



# **Example Case C**: $1.0 M Incentive, $10/kg price, $10k incidental revenue

**22% IRR, 5 yr investor payback**

- $1 M capital incentive
- $10 per kg price
- Add an incidental revenue stream of $10k per year (~$30/day)
- Increase in IRR and investor payback period
- Result: $9.2/kg as breakeven price for a 10% IRR



# H2FAST EXCEL

**H2FAST Excel**

# H2FAST Spreadsheet: Summary of Capabilities

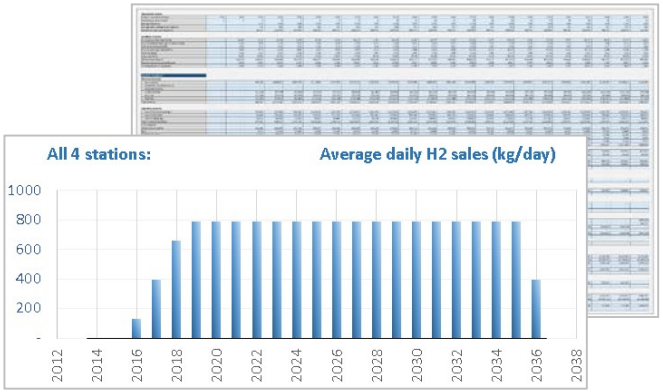
**In general the spreadsheet version allows for greater control of inputs and more elaborate exploration of outputs, within a spreadsheet environment that may be more comfortable or preferable for some end-users.**

## Inputs

- Ability to enter information for up to 10 stations, and assess finances for each individually or as a cluster of station projects.
- This allows for side-by-side comparison of station projects
- There are two modes for users to provide inputs:
  - Basic mode: 20 parameters
  - Advanced mode: 51 parameters
- Inputs and outputs have hover-over descriptions to orient users

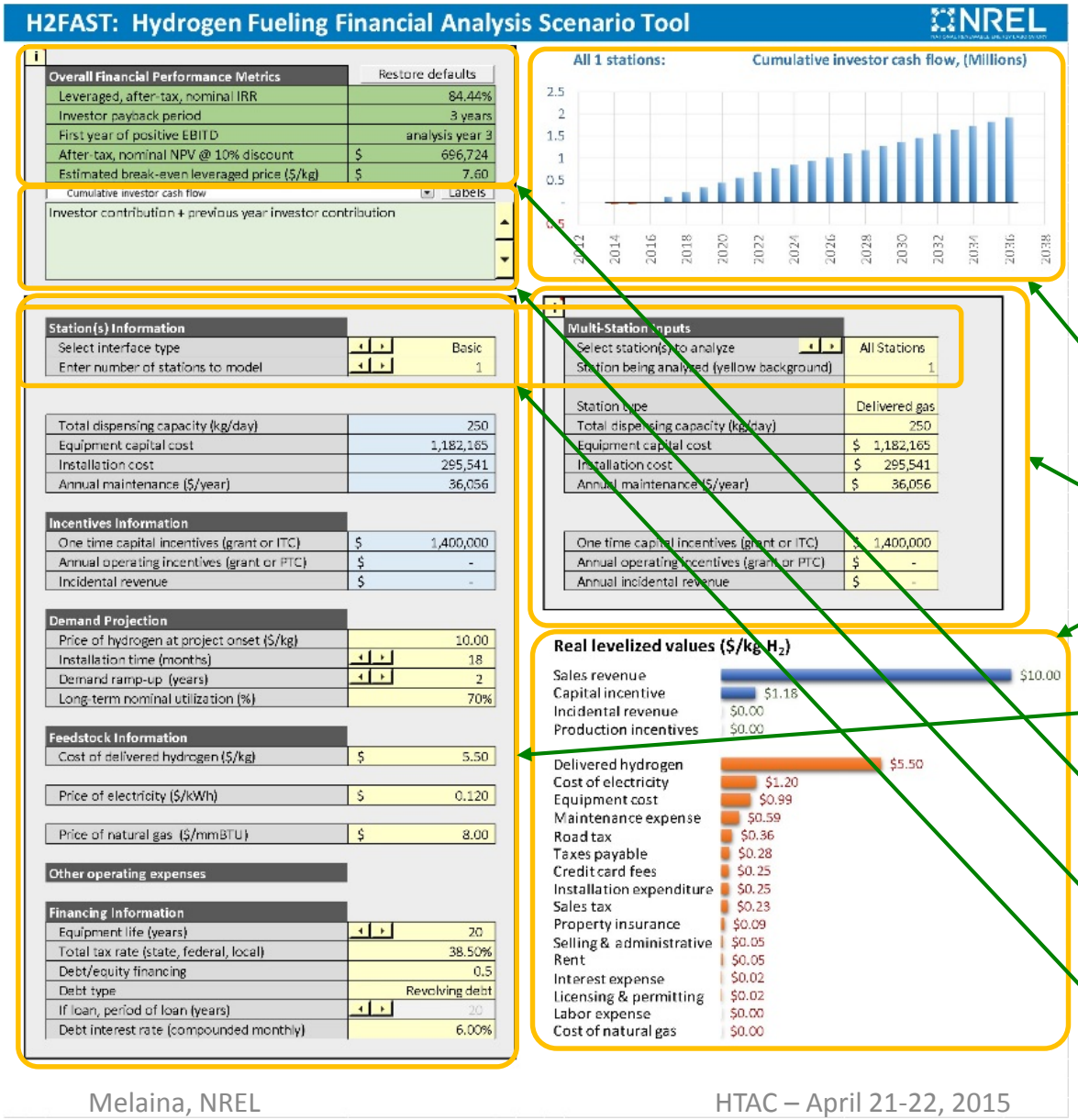
## Outputs

- Detailed report tables are provided for each project year
  - Scenario parameters (e.g., volumes of sales)
  - Income statement
  - Cash flow statement
  - Balance sheet
  - Select ratio analyses



# H2FAST Excel Interface

**H2FAST Excel**




## Basic Interface

- Basic user inputs
- Advanced user inputs
- Calculated values
- Key results

Detailed graphical display

Station costs specifications

Revenues, cost breakdown

Financial specifications

General outputs

Graphical display selector

Mode & stations toggles

# H2FAST:
# BUSINESS CASE SCENARIO TOOL (BCS)

**BCS Vis**

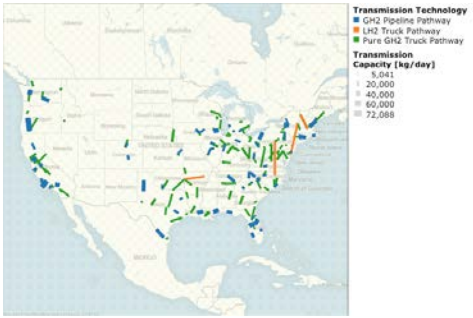
# Visualizing SERA Scenario Results

BCS Vis

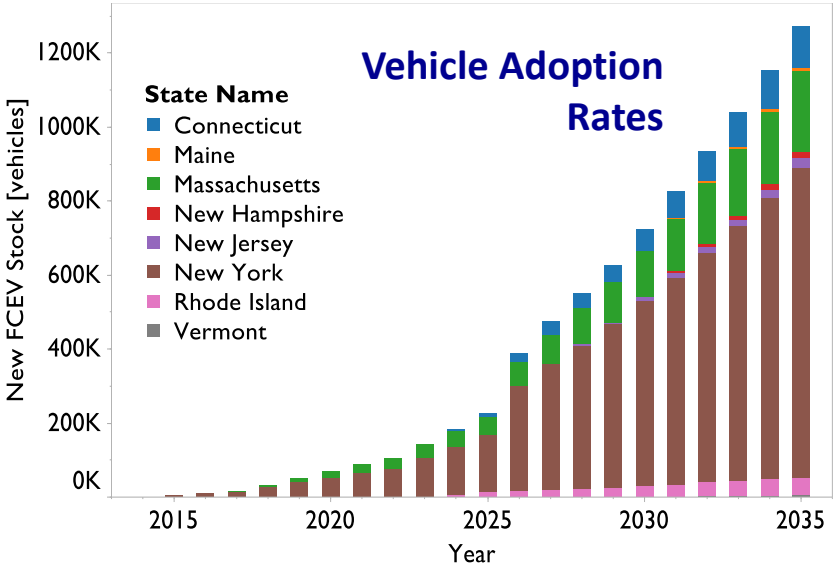
**The H2FAST framework can be applied across the entire hydrogen system to explore multiple market growth scenarios**

- The SERA model can generate a large volume of scenario results
- For some engaged audiences, such as H2USA Working Group members, there is interest in exploring multiple sets of scenario outputs
- The SERA Visualization tool (BCS-Vis) is being developed for this type of audience

**Demand and Delivery by City**

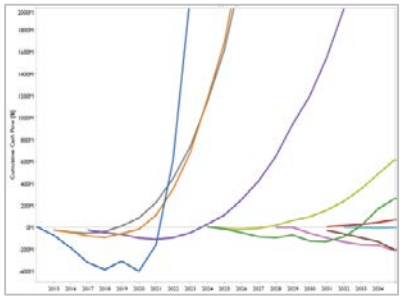



**Regional/State-level Subsets of Results**



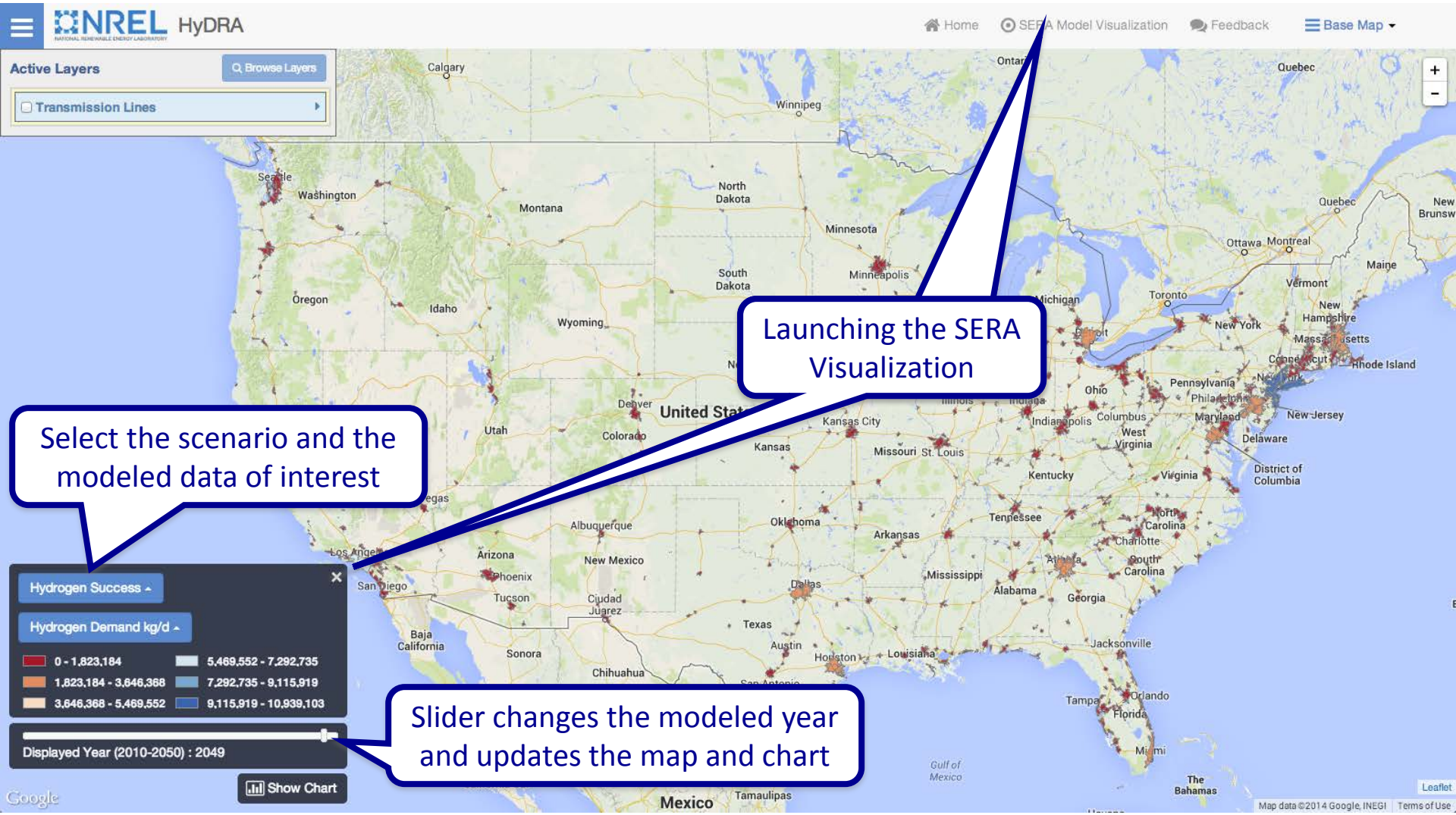

**Station Placement**

**Cash Flows**



# SERA Visualization (Beta)

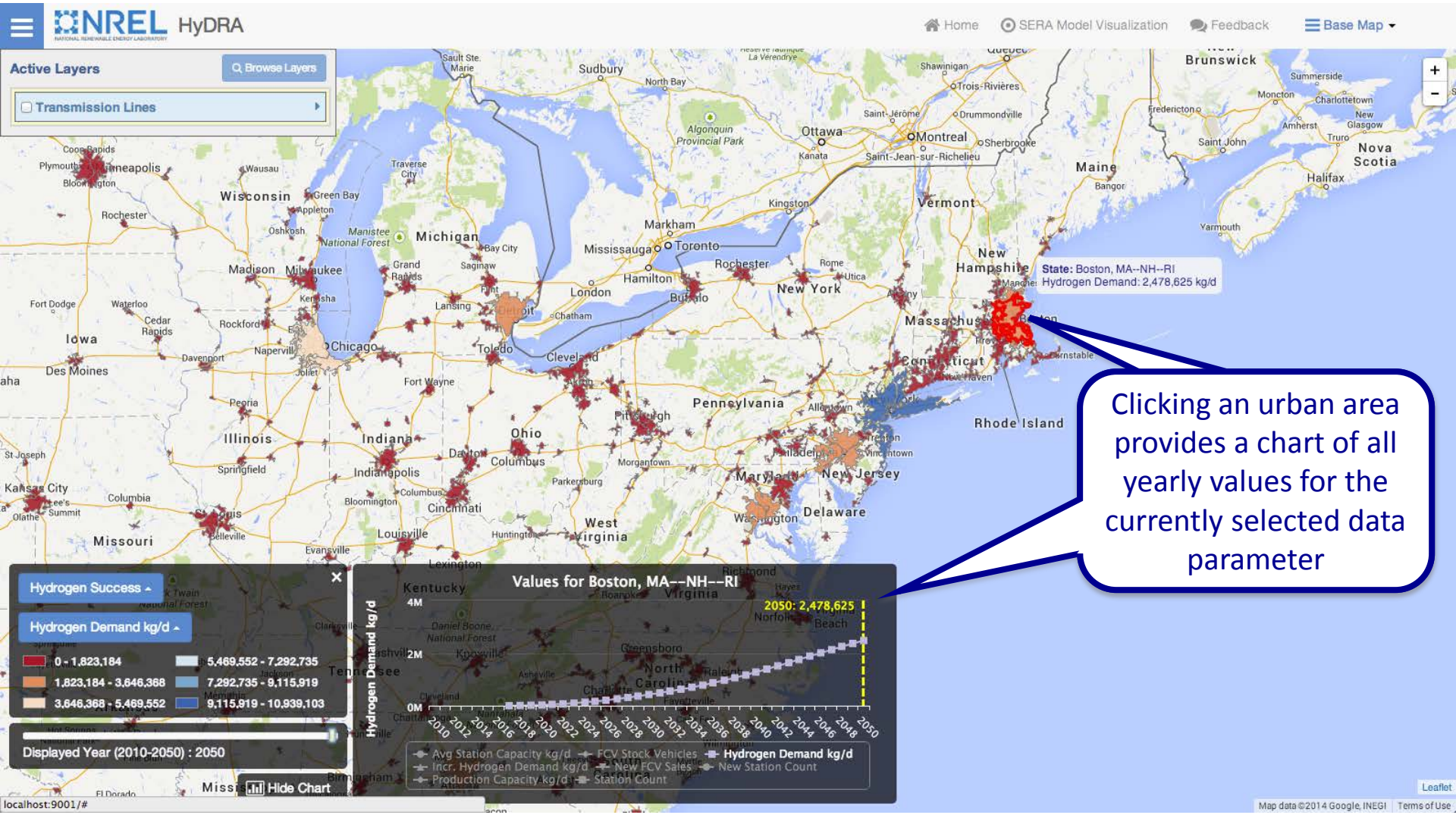
BCS Vis




This 4-min video demonstrates this visualization tool: http://youtu.be/J7y51c-dldo

BCS Vis

# SERA Visualization (Beta)




Clicking an urban area provides a chart of all yearly values for the currently selected data parameter

This 4-min video demonstrates this visualization tool: http://youtu.be/J7y51c-dldo

# Summary

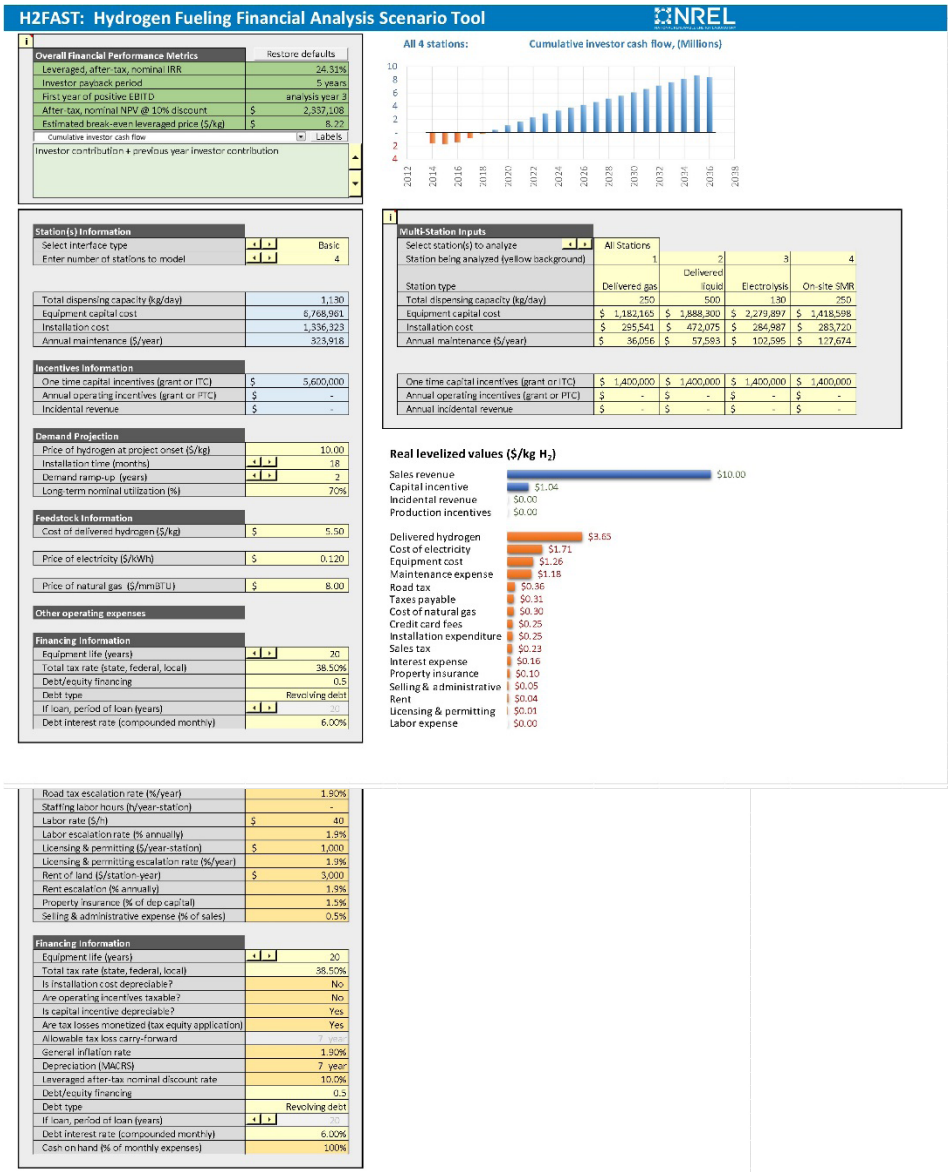
- The H2FAST *Web* and *Spreadsheet* tools are an effective means of informing investment decisions on hydrogen station projects
  - Developed for end-users requiring a simple, first-cut analysis (*web version*) as well as more detailed and elaborate analyses (*spreadsheet version*)
- The H2FAST framework can also be applied to the entire hydrogen fuel supply chain to evaluate the financial implications of infrastructure development at the city, region, or national levels
  - This framework is currently being used internally to inform H2USA IFWG members in scenario exploration
  - A beta version of a visualization tool has been developed to allow access to these multivariate results to a broader audience

# QUESTIONS?

# BACKUP SLIDES

# Example Toggles

**H2FAST Excel**




**Basic Interface**
**4 station**
**4 stations aggregate**

# Report Tables

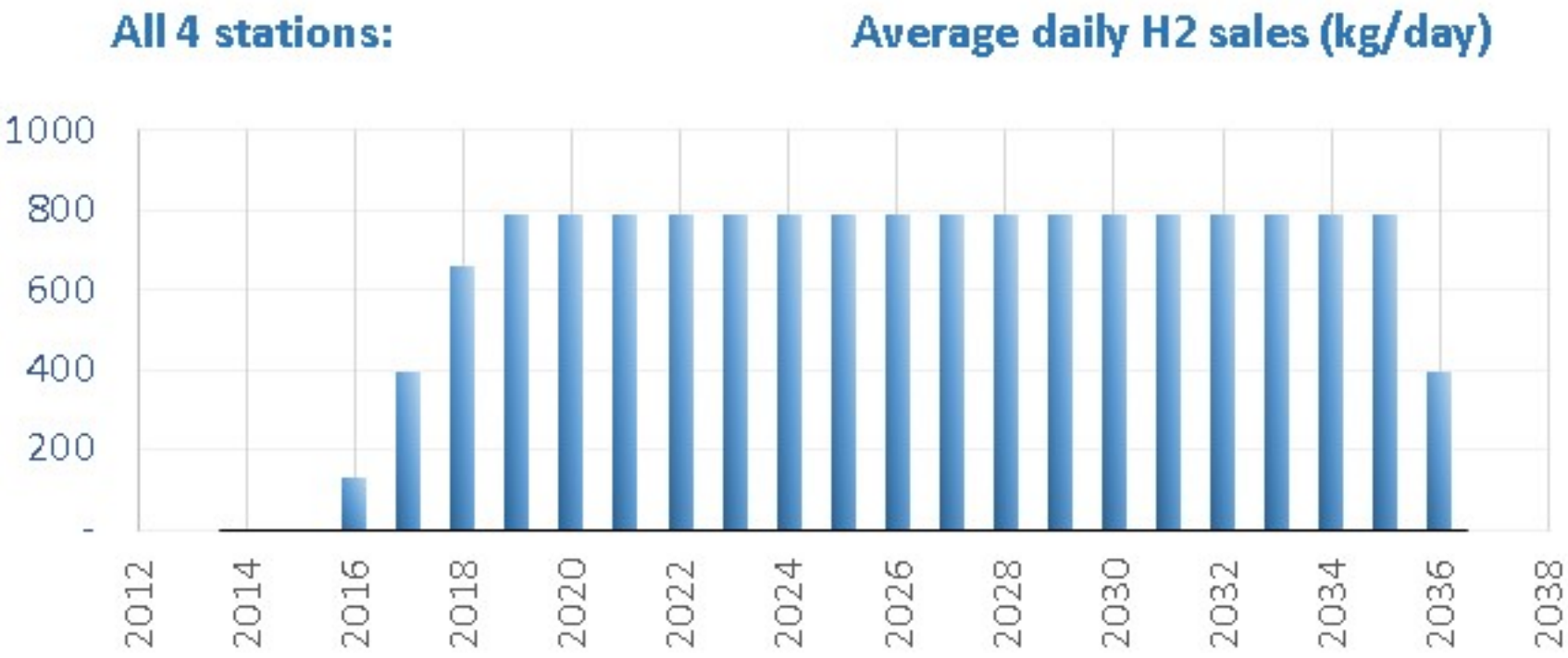
**H2FAST Excel**

**General parameters** · **Income statements** · **Cash flow statements** · **Balance sheets**

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **General information** | | | | | | | | | | | | | | | | | | | | | | | |
| Calendar year (end of year) | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 |
| Analysis year (end of year) | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Average Utilization | - | - | 0.12 | 0.35 | 0.58 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.35 |
| Average daily hydrogen sales (kg/day) | - | - | 132 | 395 | 659 | 791 | 791 | 791 | 791 | 791 | 791 | 791 | 791 | 791 | 791 | 791 | 791 | 791 | 791 | 791 | 791 | 791 | 396 |
| Annual hydrogen sales (kg/year) | - | - | 48,119 | 144,358 | 240,596 | 288,715 | 288,715 | 288,715 | 288,715 | 288,715 | 288,715 | 288,715 | 288,715 | [illegible] | [illegible] | 288,715 | 288,715 | 288,715 | 288,715 | 288,715 | 288,715 | 288,715 | 144,358 |
| **Escalation of prices** | | | | | | | | | | | | | | | | | | | | | | | |
| Pump price of hydrogen ($/kg) | - | 10.00 | 10.19 | 10.38 | [illegible] | 10.78 | 10.99 | [illegible] | 11.41 | [illegible] | 11.85 | [illegible] | 12.30 | [illegible] | [illegible] | 13.01 | 13.26 | 13.51 | 13.77 | 14.03 | 14.30 | 14.57 | 14.85 |
| Cost of delivered hydrogen to station ($/kg) | - | 5.50 | 5.60 | 5.71 | 5.82 | [illegible] | [illegible] | [illegible] | 6.27 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 7.02 | 7.16 | 7.29 | 7.43 | 7.57 | 7.72 | 7.86 | 8.01 | 8.17 |
| Cost of electricity ($/kWh) | - | 0.12 | 0.12 | 0.12 | 0.13 | [illegible] | [illegible] | [illegible] | 0.14 | [illegible] | [illegible] | 0.14 | 0.15 | 0.15 | 0.15 | 0.16 | 0.16 | 0.16 | 0.17 | 0.17 | 0.17 | 0.17 | 0.18 |
| Cost of natural gas ($/mmBTU) | - | 8.00 | 8.15 | 8.31 | [illegible] | [illegible] | [illegible] | [illegible] | 9.13 | 9.30 | 9.48 | 9.66 | 9.84 | 10.03 | 10.22 | 10.41 | 10.61 | 10.81 | 11.02 | 11.23 | 11.44 | 11.66 | 11.88 |
| Road tax ($/kg) | - | 0.36 | 0.37 | 0.37 | 0.38 | [illegible] | [illegible] | 0.40 | 0.41 | 0.42 | 0.43 | 0.43 | 0.44 | 0.45 | 0.46 | 0.47 | 0.48 | 0.49 | 0.50 | 0.51 | 0.51 | 0.52 | 0.53 |
| Labor rate ($/h) | - | 40.00 | 40.76 | 41.53 | [illegible] | 43.13 | 43.95 | 44.78 | 45.63 | 46.50 | 47.38 | 48.28 | 49.20 | 50.14 | 51.09 | 52.06 | 53.05 | 54.06 | 55.08 | 56.13 | 57.20 | 58.28 | 59.39 |
| Maintenance ($/year) | - | 323,918 | 330,073 | 336,344 | 342,735 | 349,247 | 355,882 | 362,644 | 369,534 | 376,556 | 383,710 | 391,001 | 398,430 | 406,000 | 413,714 | 421,574 | 429,584 | 437,746 | 446,064 | 454,539 | 463,175 | 471,975 | 480,943 |
| Rent for station footprint ($/year) | - | 3,000 | 3,057 | 3,115 | 3,174 | 3,235 | 3,296 | 3,359 | 3,422 | 3,488 | 3,554 | 3,621 | 3,690 | 3,760 | 3,832 | 3,904 | 3,979 | 4,054 | 4,131 | 4,210 | 4,290 | 4,371 | 4,454 |
| Licensing & permitting ($/year | - | 1,000 | 1,019 | 1,038 | 1,058 | 1,078 | 1,099 | 1,120 | 1,141 | 1,163 | 1,185 | 1,207 | 1,230 | 1,253 | 1,277 | 1,301 | 1,326 | 1,351 | 1,377 | 1,403 | 1,430 | 1,457 | 1,485 |
| **INCOME STATEMENT** | | | | | | | | | | | | | | | | | | | | | | | |
| **Revenues (annual)** | | | | | | | | | | | | | | | | | | | | | | | |
| Sales revenue | - | - | 490,334 | 1,498,952 | 2,545,720 | 3,112,907 | 3,172,052 | 3,232,321 | 3,293,735 | 3,356,316 | 3,420,086 | 3,485,067 | 3,551,284 | 3,618,758 | 3,687,515 | 3,757,577 | 3,828,971 | 3,901,722 | 3,975,854 | 4,051,396 | 4,128,372 | 4,206,811 | 2,143,370 |
| Production incentive revenue | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Incidental revenue | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Credit card fees | - | - | (12,258) | (37,474) | (63,643) | (77,823) | (79,301) | (80,808) | (82,343) | (83,908) | (85,502) | (87,127) | (88,782) | (90,469) | (92,188) | (93,939) | (95,724) | (97,543) | (99,396) | (101,285) | (103,209) | (105,170) | (53,584) |
| Sales tax | - | - | (11,033) | (33,726) | (57,279) | (70,040) | (71,371) | (72,727) | (74,109) | (75,517) | (76,952) | (78,414) | (79,904) | (81,422) | (82,969) | (84,545) | (86,152) | (87,789) | (89,457) | (91,156) | (92,888) | (94,653) | (48,226) |
| Road tax | - | - | (17,652) | (53,962) | (91,646) | (112,065) | (114,194) | (116,364) | (118,574) | (120,827) | (123,123) | (125,462) | (127,846) | (130,275) | (132,751) | (135,273) | (137,843) | (140,462) | (143,131) | (145,850) | (148,621) | (151,445) | (77,161) |
| Total revenue | - | - | 449,391 | 1,373,789 | 2,335,152 | 2,852,979 | 2,907,185 | 2,962,422 | 3,018,708 | 3,076,063 | 3,134,509 | 3,194,064 | 3,254,752 | 3,316,592 | 3,379,607 | 3,443,820 | 3,509,252 | 3,575,928 | 3,643,871 | 3,713,104 | 3,783,653 | 3,855,543 | 1,964,399 |
| **Operating expenses** | | | | | | | | | | | | | | | | | | | | | | | |
| Cost of delivered hydrogen | - | - | 178,994 | 547,184 | 929,300 | 1,136,349 | 1,157,939 | 1,179,940 | 1,202,359 | 1,225,204 | 1,248,483 | 1,272,204 | 1,296,376 | 1,321,007 | [illegible] | 1,371,682 | 1,397,744 | 1,424,301 | 1,451,363 | 1,478,939 | 1,507,039 | 1,535,672 | 782,425 |
| Cost of electricity | - | - | 83,834 | 256,281 | 435,251 | 532,224 | 542,337 | 552,641 | 563,141 | 573,841 | [illegible] | 595,854 | [illegible] | [illegible] | [illegible] | 642,446 | 654,652 | 667,091 | 679,766 | 692,681 | 705,842 | 719,253 | 366,459 |
| Cost of natural gas | - | - | 14,753 | 45,101 | 76,597 | 93,663 | 95,442 | 97,255 | 99,104 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 113,060 | 115,208 | 117,397 | 119,627 | 121,900 | 124,217 | 126,577 | 64,491 |
| Total feedstock & utilities | - | - | 277,581 | 848,566 | 1,441,148 | 1,762,236 | 1,795,718 | 1,829,837 | 1,864,604 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 2,127,188 | 2,167,604 | 2,208,789 | 2,250,736 | 2,293,520 | 2,337,097 | 2,381,502 | 1,213,375 |
| Labor expense | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Maintenance expense | - | - | 165,036 | 336,344 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 398,430 | 406,000 | 413,714 | 421,574 | 429,584 | 437,746 | 446,064 | 454,539 | 463,175 | 471,975 | 240,471 |
| Rent | - | - | 6,114 | 12,460 | [illegible] | [illegible] | [illegible] | [illegible] | 13,690 | [illegible] | 14,215 | 14,485 | 14,760 | 15,041 | 15,327 | 15,618 | 15,915 | 16,217 | 16,525 | 16,839 | 17,159 | 17,485 | 8,909 |
| Property insurance | - | - | 55,352 | 84,805 | [illegible] | [illegible] | [illegible] | [illegible] | 25,560 | 20,045 | 20,045 | 20,045 | 20,045 | 20,045 | 20,045 | 20,045 | 20,045 | 20,045 | 20,045 | 20,045 | 20,045 | 20,045 | 10,022 |
| Licensing & permitting | - | - | 2,038 | 4,153 | [illegible] | [illegible] | 4,395 | 4,478 | 4,563 | 4,650 | 4,738 | 4,828 | 4,920 | 5,014 | 5,109 | 5,206 | 5,305 | 5,406 | 5,508 | 5,613 | 5,720 | 5,828 | 2,970 |
| Selling & administrative | - | - | 2,452 | 7,493 | 12,729 | 15,565 | 15,860 | 16,162 | 16,469 | 16,782 | 17,100 | 17,425 | 17,756 | 18,094 | 18,438 | 18,788 | 19,145 | 19,509 | 19,879 | 20,257 | 20,642 | 21,034 | 10,717 |
| Total operating expenses | - | - | 508,574 | 1,293,822 | 1,879,845 | 2,197,382 | 2,228,681 | 2,261,211 | 2,294,520 | 2,332,013 | 2,375,941 | 2,420,703 | 2,466,315 | 2,512,794 | 2,560,157 | 2,608,419 | 2,657,598 | 2,707,711 | 2,758,777 | 2,810,813 | 2,863,837 | 2,917,869 | 1,486,464 |
| Earnings before interest, taxes and depreciation (EBITD) | - | - | (59,182) | 79,967 | 455,308 | 655,597 | 678,504 | 701,211 | 724,188 | 744,050 | 758,568 | 773,362 | 788,436 | 803,798 | 819,451 | 835,401 | 851,654 | 868,217 | 885,094 | 902,291 | 919,816 | 937,673 | 477,935 |
| Interest on outstanding debt | - | 50,106 | 50,106 | 50,106 | 50,106 | 50,106 | 50,106 | 50,106 | 50,106 | 50,106 | 50,106 | 50,106 | 50,106 | 50,106 | 50,106 | 50,106 | 50,106 | 50,106 | 50,106 | 50,106 | 50,106 | 50,106 | 25,053 |
| Equipment depreciation | - | - | 724,956 | 1,726,762 | 1,233,305 | 881,319 | 629,513 | 599,053 | 599,730 | 374,324 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Taxable income | - | (50,106) | (834,244) | (1,696,900) | (830,103) | (275,828) | (1,115) | 52,053 | 74,353 | 319,621 | 708,462 | 723,256 | 738,331 | 753,692 | 769,345 | 785,295 | 801,549 | 818,111 | 834,988 | 852,186 | 869,710 | 887,567 | 452,882 |
| Taxes payable | - | (30,815) | (513,060) | (1,043,594) | (510,513) | (169,634) | (686) | 32,012 | 45,727 | 196,567 | 435,704 | 444,802 | 454,073 | 463,520 | 473,147 | 482,957 | 492,952 | 503,138 | 513,518 | 524,094 | 534,872 | 545,854 | 278,522 |
| Net Income | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **CASH FLOW STATEMENT** | | | | | | | | | | | | | | | | | | | | | | | |
| Net Income | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Adjustments to reconcile net income to net cash** | | | | | | | | | | | | | | | | | | | | | | | |
| Depreciation | - | (30,815) | 211,896 | 583,168 | 722,792 | 711,685 | 628,828 | 631,065 | 645,457 | 570,890 | 435,704 | 444,802 | 454,073 | 463,520 | 473,147 | 482,957 | 492,952 | 503,138 | 513,518 | 524,094 | 534,872 | 545,854 | 278,522 |
| Net Cash | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Cash Flows From Investing Activities** | | | | | | | | | | | | | | | | | | | | | | | |
| Capital expenditures for equipment | (1,336,323) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Capital expenditures for equipment installation | (8,105,284) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Net Cash Provided by (Used in) Investing Activities | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Cash Flows From Financing Activities** | | | | | | | | | | | | | | | | | | | | | | | |
| Incurrence of debt | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (835,095) |
| Repayment of debt | 1,670,190 | 33,383 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 280,765 |
| Inflow of equity | - | - | (194,672) | [illegible] | [illegible] | [illegible] | (617,406) | [illegible] | [illegible] | [illegible] | (419,568) | (440,598) | (449,789) | (459,154) | (468,698) | (478,423) | (488,333) | (498,431) | (508,721) | (519,206) | (529,891) | (540,778) | - |
| Dividends paid | 5,600,000 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Receipt of one-time capital incentive | 8,105,284 | 33,383 | (194,672) | (545,408) | [illegible] | (667,440) | (617,406) | (626,648) | (641,966) | (559,897) | (419,568) | (440,598) | (449,789) | (459,154) | (468,698) | (478,423) | (488,333) | (498,431) | (508,721) | (519,206) | (529,891) | (540,778) | (554,330) |
| Net Cash Used in Financing Activities | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Net Change of Cash and Cash Equivalents | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **BALANCE SHEET** | | | | | | | | | | | | | | | | | | | | | | | |
| **Assets** | | | | | | | | | | | | | | | | | | | | | | | |
| cumulative cash | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 | 8,105,284 |
| cumulative PP&E | - | - | (724,956) | (2,451,718) | (3,685,022) | (4,566,341) | (5,195,855) | (5,794,908) | (6,394,538) | (6,768,961) | (6,768,961) | (6,768,961) | (6,768,961) | (6,768,961) | (6,768,961) | (6,768,961) | (6,768,961) | (6,768,961) | (6,768,961) | (6,768,961) | (6,768,961) | (6,768,961) | (6,768,961) |
| cumulative depreciation | 8,105,284 | 8,105,284 | 7,380,329 | 5,653,567 | 4,420,262 | 3,538,943 | 2,909,430 | 2,310,377 | 1,710,647 | 1,336,323 | 1,336,323 | 1,336,323 | 1,336,323 | 1,336,323 | 1,336,323 | 1,336,323 | 1,336,323 | 1,336,323 | 1,336,323 | 1,336,323 | 1,336,323 | 1,336,323 | 1,336,323 |
| Net PP&E | - | - | 19,291 | 340,475 | 993,781 | 1,313,371 | 1,419,564 | 1,399,954 | 1,371,328 | 1,248,274 | 806,761 | 147,759 | - | - | - | - | - | - | - | - | - | - | - |
| cumulative tax loss carryforward | 8,105,284 | 8,107,852 | 7,419,411 | 6,051,593 | 5,548,240 | 5,030,755 | 4,518,857 | 3,904,610 | 3,279,746 | 2,793,361 | 2,367,985 | 1,713,187 | 1,569,713 | 1,574,079 | 1,578,528 | 1,583,062 | 1,587,682 | 1,592,389 | 1,597,186 | 1,602,074 | 1,607,055 | 1,612,131 | 1,336,323 |
| Total assets | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Liabilities** | | | | | | | | | | | | | | | | | | | | | | | |
| cumulative Debt | 835,095 | 835,095 | 835,095 | 835,095 | 835,095 | 835,095 | 835,095 | 835,095 | 835,095 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 835,095 | 835,095 | 835,095 | 835,095 | 835,095 | 835,095 | 835,095 | 835,095 | - |
| Total liabilities | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Equity** | | | | | | | | | | | | | | | | | | | | | | | |
| cumulative equity from capital incentives | 1,670,190 | 1,703,572 | 1,703,572 | 1,703,572 | 1,703,572 | [illegible] | [illegible] | [illegible] | [illegible] | 1,703,572 | 1,703,572 | 1,703,572 | 1,703,572 | 1,703,572 | 1,703,572 | 1,703,572 | 1,703,572 | 1,703,572 | 1,703,572 | 1,703,572 | 1,703,572 | 1,703,572 | 1,984,357 |
| cumulative equity (investor contribution) | - | (30,815) | (738,547) | (2,427,549) | (3,584,209) | [illegible] | [illegible] | (5,634,011) | (6,230,249) | (6,593,580) | (6,577,444) | (6,573,239) | (6,568,954) | (6,564,588) | (6,560,139) | (6,555,605) | (6,550,986) | (6,546,278) | (6,541,481) | (6,536,593) | (6,531,612) | (6,526,537) | (6,248,014) |
| Retained earnings | - | - | 19,291 | 340,475 | 993,781 | 1,313,371 | 1,419,564 | 1,399,954 | 1,371,328 | 1,248,274 | 806,761 | 147,759 | - | - | - | - | - | - | - | - | - | - | - |
| cumulative deferred tax losses | 7,270,190 | 7,272,757 | 6,584,316 | 5,216,498 | 4,715,145 | 4,195,660 | 3,683,763 | 3,069,515 | 2,444,651 | 1,958,267 | 1,532,890 | 878,092 | 734,618 | 738,984 | 743,433 | 747,967 | 752,587 | 757,294 | 762,091 | 766,979 | 771,960 | 777,036 | 1,336,323 |
| Total equity | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

H2FAST Excel

# Time Series Examples




- **User can select from 65 common reportable time series.**
- **Labels can be turned on and off to show numeric values**