

**Project Financing  
for IGCC and  
Other Coal Gasification Projects**

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# The "Iron Law" of Project Finance

- The debt does not take any risk
  - Lenders want complete assurance of being repaid – with interest
  - In fact, lenders want protection in depth ("belt and suspenders")
- Lender's point of view:
  - There's no upside for the lender, no share of the profits
  - Consequently, there should be no risk – not even a little
- Eliminating risk to the lenders:
  - Assured revenue streams (more than ample to cover debt service)
  - Major equity investment in the project (a cushion to protect lenders)
  - As many guarantees as possible (e.g., cost, completion date, performance) from as many creditworthy guarantors as possible
  - Ideally: a "full-wrap" warranty from creditworthy party or consortium

# A More Colorful Way of Saying It

"The first things folks do, when there's gonna be a project, is they sit around the table grabbing as many benefits for themselves as they can get. Then, when that's done, they start pushing the risks away from themselves and toward the other guys at the table.

"So long as all the risks end up in someone's lap, the project gets built. But if any risks end up on the floor, then the project doesn't get built. It's as simple as that."

-- *A client*

**The risk of revenue shortfall cannot land in lenders' laps**

# Proposition #1: There's nothing inherently different about financing coal gasification.

- Still have to protect the lenders; still have to attract equity.
- Still have to deal with "sweet and sour" market conditions.
- Need contracts (or other arrangements) to cover four risks:
  - Long-term equipment warranties to cover equipment risks
  - Long-term sales contracts to cover revenue stream risks
    - Power purchase agreements, other off-take agreements, etc.
    - Market appetite for merchant risk is small currently, but growing.
    - Some situations yield predictable revenues w/out long-term contracts.
  - Long-term fuel supply arrangements to cover fuel risks
  - Long-term O&M arrangements to cover operational risks
- Counter-parties on these contracts must be creditworthy.

## But there are some twists . . .

- Who can & will warrant all the combined equipment?
  - Full-wrap warranties sought – but are they available today?
- What if cost of IGCC exceeds cost of alternatives?
  - This risk has customer, regulatory, and rating agency implications
  - Utility & IPP reluctant to incur the “pioneer's penalty” or carbon risk
  - New technologies: Costs keep falling – but do they rise first?
  - What are the strategies for dealing with this? (They do exist.)
- Long-term fuel supply arrangements:
  - Good for financing and plant design – but what of transport?
- Long-term O&M arrangements:
  - Financing market's needs may conflict with a utility's own ideas
- Changing backdrop & context: will conventional coal necessarily remain easier to permit & finance than IGCC?

## **Proposition #2: The apparent financing issue may be an issue of project cost & performance**

- The world's heard that this technology will cost "20% more" and believes its availability/reliability is poor
- Altitude an issue in Wyoming, Montana, elsewhere
- This + fear of "pioneer's penalty" + long lead times inhibits orders, makes financing harder, limits public support, etc.
- But skillful people are working to produce big surprises:
  - Gasification projects at prices that aren't necessarily higher
  - Alternative gasification technologies ("2nd generation") that are potentially smaller, less expensive, faster, more flexible, and better
  - Solutions for the altitude issue?
- A possibility: “advanced” technologies overtaking today’s?

# Financing “Advanced” Gasification -- Hypothetical Example: XYZ SynGas Co.

- Technology appears to offer several advantages:
  - Lower capital cost, shorter construction time (2 yrs  $\pm$ )
  - Flexible re: fuel source (coal, pet coke, lignite, chemical wastes)
  - Modularity (gasifiers = individual reactor vessels, clustered)
- A full-scale IGCC plant as first project would require debt
  - Creditworthy entity can warrant performance only after it's proven
- Thus, 1st commercial project must be smaller & all equity
  - Prove gasifiers by producing syngas for chemical feedstock or synthetic natural gas; generate only enough power to run the plant
- Surprise (or not): pro forma may show better return if gasification used only for SNG, chemical feedstocks, clean liquid fuels – without sales of electric power!

# Some 2<sup>nd</sup> generation (advanced) technologies

- Calderon (blast furnace technology)
  - Great Point Energy (catalytic syngas technology)
  - Hague Environmental Pwr (ultra high temperature steam)
  - HydroMax (molten metals technology)
  - Texas Syngas (molten metals technology)
- and*
- Ergo Exergy (proven underground coal gasification)

# Gasification for Power – or for Gas?

- At current prices, gasification for synthetic methane, chemical feedstocks, liquid fuels appears most profitable
- Strategically, huge numbers of existing gas-fired plants are also idle – could be re-started w/ reasonable fuel supply
- Gas plants could thus obviate much new conventional coal
- Does this mean IGCC will falter, or even die a-borning?
  - No: huge world market; room for all; "dirty" coal still bad; carbon taxes and trading schemes still favor IGCC vs. other coal
  - Yes: unless industry promptly overcomes negative perceptions re: cost & availability/performance by absorbing pioneer's penalty
- The goal should be getting "unstuck" -- without relying on subsidies, high early project prices, shifting risks to buyers

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Eric Redman, 58, lives in Seattle. He was educated at Harvard College, Oxford University (as a Rhodes Scholar) and Harvard Law School. He founded Heller Ehrman's Seattle office, its Energy Practice Group, and its Clean Tech practice. His practice centers on energy project development and finance, with emphasis on new energy technologies, as well as energy-related matters of public policy. He represents Summit Power Group on IGCC projects in Oregon and Texas, and works with several advanced gasification technology companies.

Redman served as a legislative aide to U.S. Senator Warren Magnuson (D-WA), and wrote a popular book about Congress, *The Dance of Legislation*. He has also written for the *New York Times*, the *Washington Post*, *Open Spaces*, and many other publications, and was once a Contributing Editor of *Rolling Stone*.

His article on the climate effects of soot, "A Dirty Little Secret," appeared in the May-June 2005 issue of *Legal Affairs*.