

# Decision Tools for Capital Projects

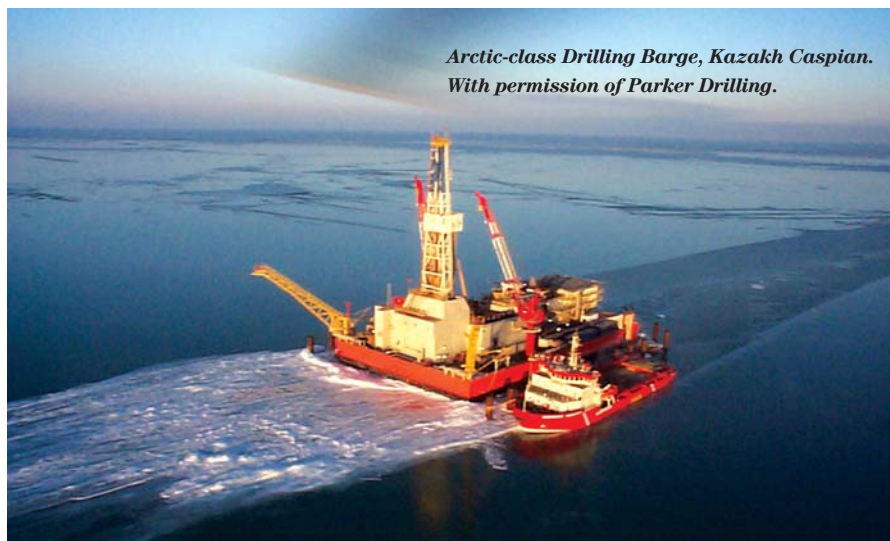
*The Financial Times fDi Intelligence unit recently reported that foreign direct investment is primarily market-seeking, with almost half of all FDI projects in 2013 driven by access to domestic markets and one-third of FDI projects driven by proximity to regional markets and customers.*

With capacity utilization in many industries remaining slack, what tools can management use to evaluate growth opportunities far enough in advance to make the big capex commitments essential to their future? A systematic program for assessing and ranking competing projects, when applied rigorously, can enable management to improve the quality of decisions in the face of uncertain demand and volatile input costs and selling prices.

Two recent cases from the energy and resources sector provide some useful decision support tools. When applied early in preparing an investment case, they support evaluation of a handful of qualitative and quantitative traits critical to a successful outcome.

## PROJECT FINANCE: BALANCING RISKS AND REWARDS

Businesses and governmental agencies use project finance as a risk management technique to finance long-lived, capital intensive projects without exposing their balance sheet or agency budget. A well-conceived project financing results from a balanced and economic allocation of risks and rewards between participants. These include the project sponsor, off-take parties who buy output, lenders and suppliers of equipment and feedstock, as well as third-party equity participants



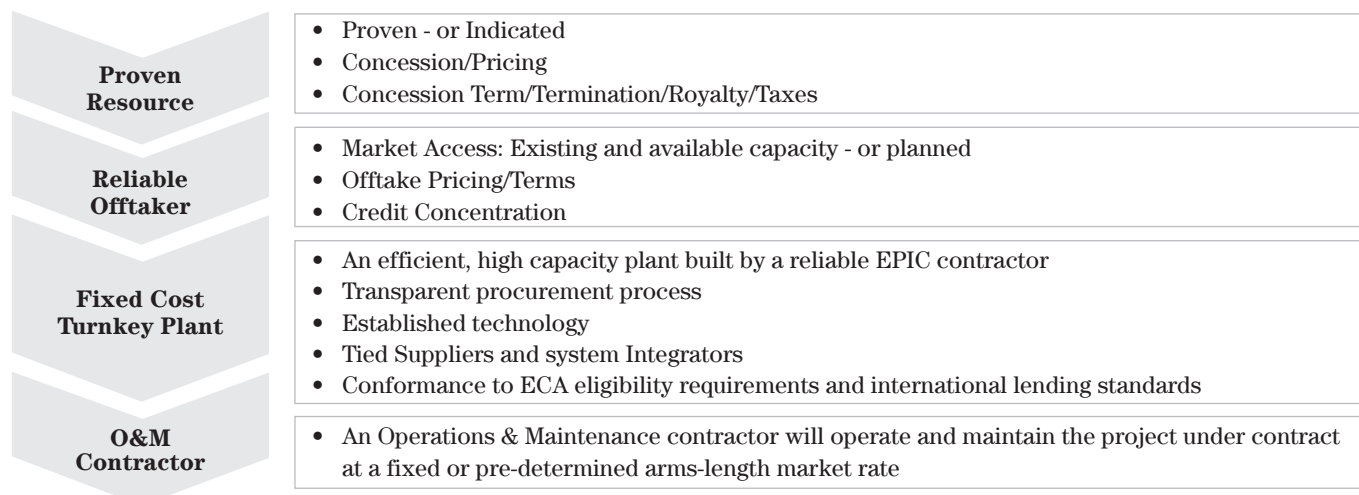
Arctic-class Drilling Barge, Kazakh Caspian. With permission of Parker Drilling.

and reliable counterparties to hedge or neutralize the risk of price changes of feedstock and outputs.

While every project finance structure is unique, they all have one element in common: the financing is based on the economics of the project and is not dependent on the credit support of the sponsor. As a practical matter, this means – ideally – the economic output of the project yields a predictable amount of cash resulting from take-or-pay contracts. The term and value of such take-or-pay contracts is the primary source of security for any funding. Capitalization of that income provides maximum sustainable leverage under stressed scenarios and thus minimal sponsor equity at risk.

Our clients undertake capital expenditures to increase market share or to replace aging or marginally compliant plant. Depending on the growth prospects of the markets served, some companies are refraining from investment for growth after adding significant capacity in the recent past. Some of this restraint reflects a preference for strategic and balance sheet resilience ahead of widely anticipated increases in base rates and term spreads on project loans. In other cases, boards are embracing sustainability initiatives important to stakeholders and lenders such as process yield optimization, increased recycling, waste reduction and energy efficiency - all while reducing emissions.

### 1. Essential Traits of Successful Projects



## ESSENTIAL TRAITS OF SUCCESSFUL PROJECTS

Initial project assessment addresses four characteristics: a long-lived resource, a credit-worthy off-take party,

handicaps a project's claim on the capex budget. The project economics will simply be unable to support significant leverage without recourse to the balance sheet of the project sponsor.

The currency paid by the offtake party who buys the production should match the currency of the loan. Hedging is readily available, but not for all currencies. Local currency inflation also has an impact on borrowing costs when anticipated by lenders.



a reliable EPC contractor and suppliers and a well-run, efficient, high capacity plant operated by a reliable, credit worthy and properly priced operating and management (O&M) contractor. The lack of any one of these traits severely

Once a project passes these four hurdles, other tools can be applied to further identify and mitigate risks, particularly in foreign markets where currency exchange, export restrictions and creeping expropriation may occur.

## SOME USEFUL TOOLS FOR PROJECT ASSESSMENT AND RANK

At the next level, it's essential to explicitly identify the dynamic variables bearing on project risk. It's useful to think of risks as vectors whose magnitude and direction change over time. To assess project claims on capital budgets, we disaggregate macro and project risk vectors and sources of value. The risk vectors are simply assigned a positive, negative or neutral direction.

The following two tables illustrate an approach to qualitatively assess and rank competing projects in one or more country markets. This decision support assessment was prepared for a client who acquired a portfolio of solar power generating companies.

### 2. Overview of Macro Risks

Macro Risk	Mitigation Strategy	Borne by	Capacity	Potential Magnitude	Vector
Demand	PPA (take or pay)	Offtaker	National Grid	AA+ (20 yr PPA term)	▲
Country	None (Aaa/AAA)	Project co.	100%	Minimal	▲
HSE*	Stable laws	O&M	100%	Minimal	▲
Currency	Naturally hedged	None	100%	Zero	▲

\* Health, safety and environment regulations

### 3. Overview of Project Risks

Project Risk	Mitigation Strategy	Borne by	Capacity	Potential Magnitude	Vector
Resource	Concession (daylight)	Project Co	NA*	Finite and predictable	▲
Offtake Credit	National Grid	Project Co	Take-or-pay	A-/A3; Baa1/BBB+	▲
Credit Concentration	NA (PPA Contract)	Project Co	National grid	A-/A3; Baa1/BBB+	▲
Input Price	None (zero cost)	Project Co	Technical	Reliability of inverters	▲
Offtake Price	Fixed feed-in tariff	National grid	100%	A-/A3; Baa1/BBB+	▲
Technology	Established suppliers	Project Co.	Guarantor	Finite and manageable	↔
Market Access	Grid connection	National grid	Available	Minimal	▲
Project Cost	EPIC	Vendor	NA	NA	↔
Construction Period	EPIC	EPIC	Bondable	Finite and manageable	▲
Financial	Loan Covenants	Project Co.	Finite	Finite and manageable	↔
Dispute Resolution	Arbitration	All parties	NA	Finite and manageable	↔

\* Not applicable



Following this assessment and exhaustive financial modeling, we arranged €46MM term funding for 6 industrial grid-connect PV generators.

After a qualitative assessment, a project is then subjected to a quantitative assessment based on explicit metrics. In a second case, management of a cement company operating in Russia and Central Asia applied a uniform model to assess maintenance capex requirements and plan greenfield projects to expand market access. We assisted in undertaking a review of the current business portfolio to yield a coherent analytical approach that ranked current performance, unit valuations and prospective capex upgrades – and a greenfield project – on a consistent basis.

The base case involved replacing existing plant with a new, efficient dry kiln. Scenarios examined the impact of a 33% increase in offtake price in the first three years, the reduction of volume by 20% in the first three years and a 25% increase in capex due to unforeseen delays in execution. A final scenario included an

€8 million increase in capex incurred by excluding an EPC contractor whose outlying bid was remarkably low.

The distribution of capex by scenario and the resulting enterprise value shown below provided management with another useful tool for project evaluation.

Other summary metrics of risk and return such as IRRs were developed internally and applied to further refine management's evaluation of three project scenarios.

**CONCLUSION**

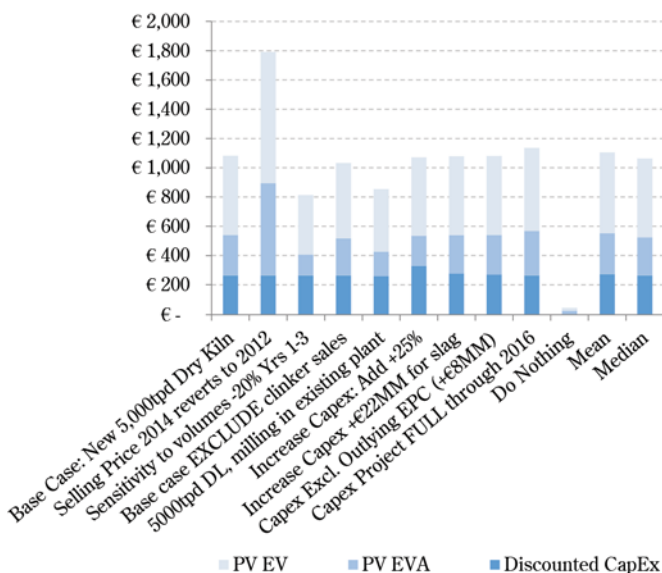
A consistent basis for project evaluation is essential to manage risks of big ticket projects. Key elements include:

- Explicit identification of project risks and their rank, both qualitatively and quantitatively;
- Active involvement of management at all levels to identify, assess and challenge current and emergent risks; and
- Systematic application of metrics for risk and **return**.

Capacity takes time to build. A well-conceived project will attract credit to enable capacity to be built in time to serve market demand. If management anticipates growth in demand, launching big ticket projects can be compelling in light of today's historically low interest rates. This is particularly true of projects which require long-term capital commitments to explore and prove reserves, or build and maintain high-margin productive capacity.

Griffin Capital Partners is a specialist project finance advisor with 20 years of experience advising enterprises in Russia, Kazakhstan, Kyrgyzstan, Uzbekistan, Afghanistan, Ukraine and Georgia as well as Europe, the Middle East, China and the Americas. We provide strategic advice to our clients and develop and assist in implementing funding strategies for their projects, acquisitions and dispositions. Learn more at: <http://www.griffincap.com> or contact us at: [partners@griffincap.ch](mailto:partners@griffincap.ch)

**4. Distribution of CapEx and Project Values for all Scenarios**



**5. IRRs of Three Project Scenarios**

