

POTENTIAL FOR INVESTMENT IN CLEAN
ENERGY
AND CAPACITY BUILDING
TO DEVELOP BANKABLE PROJECTS

Astana
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Investment Potential

IMPROVING THE EFFICIENCY OF:

- Industry
- Housing
- District heating
- Transport
- Electricity generation, transmission and use

INVESTMENTS IN RENEWABLE ENERGY:

- Hydro
 - Wind
 - Biomass
 - Geothermal
 - Solar
-

Example: Investment Potential RUSSIA*

IMPROVING THE EFFICIENCY OF:

- **Industry**
Potential: -38%; Financially viable: 80%;
Incremental investment \$35 billion
- **Housing**
Potential: -49%; Financially viable: 46%;
Incremental investment \$25 - \$50billion
- **District heating**
Potential: -19%; Financially viable: 25%- 92%;
Incremental investment \$18 - \$28 billion
- **Transport**
Potential: -41%; Financially viable: 84%;
Incremental investment \$124 - \$130 billion
- **Electricity generation, transmission and use**
Potential: -31%; Financially viable: 13%;
Incremental investment \$106 billion

*Source: IFC

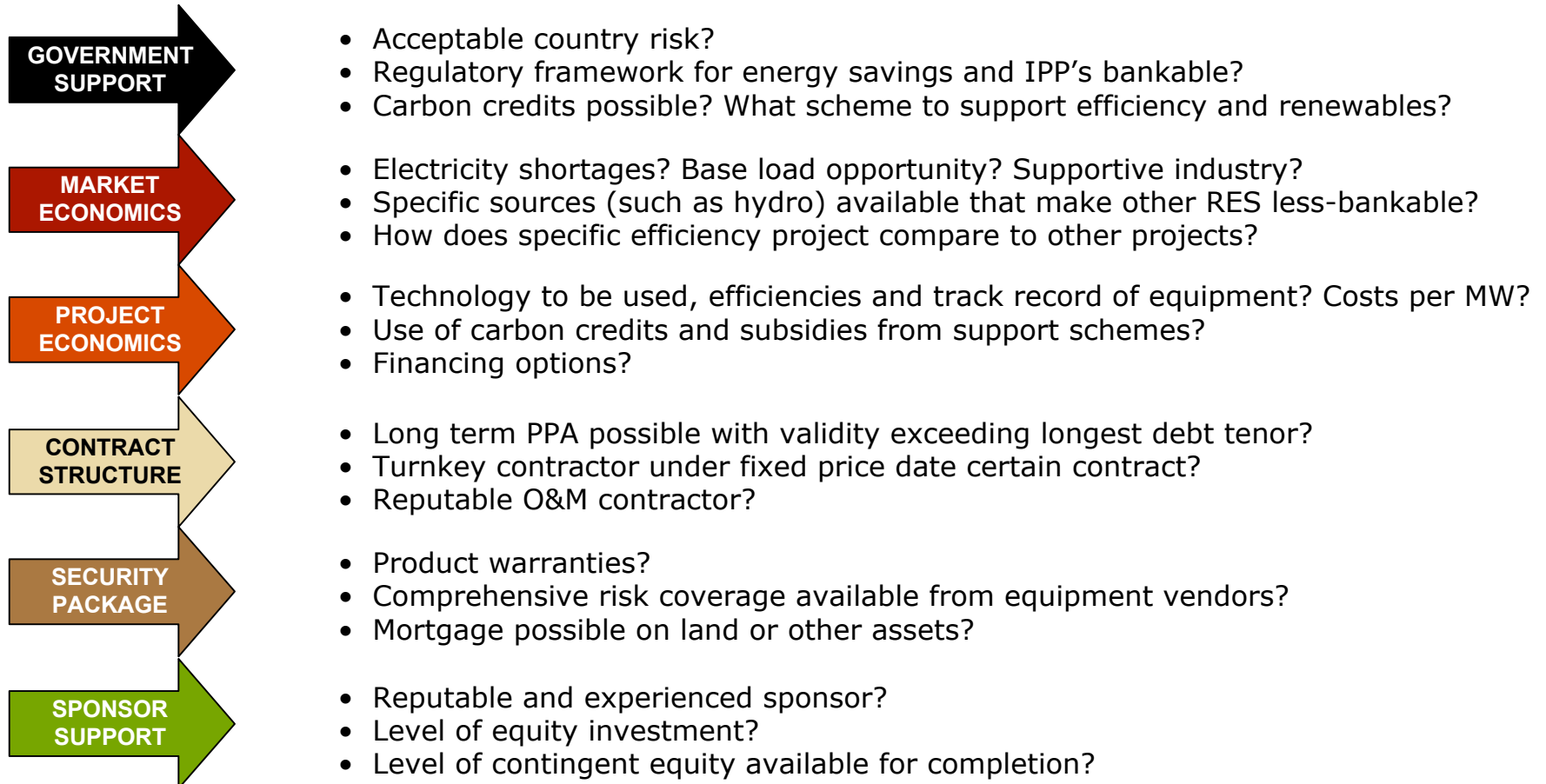
Example: Investment Potential BULGARIA

INVESTMENTS IN RENEWABLE ENERGY:

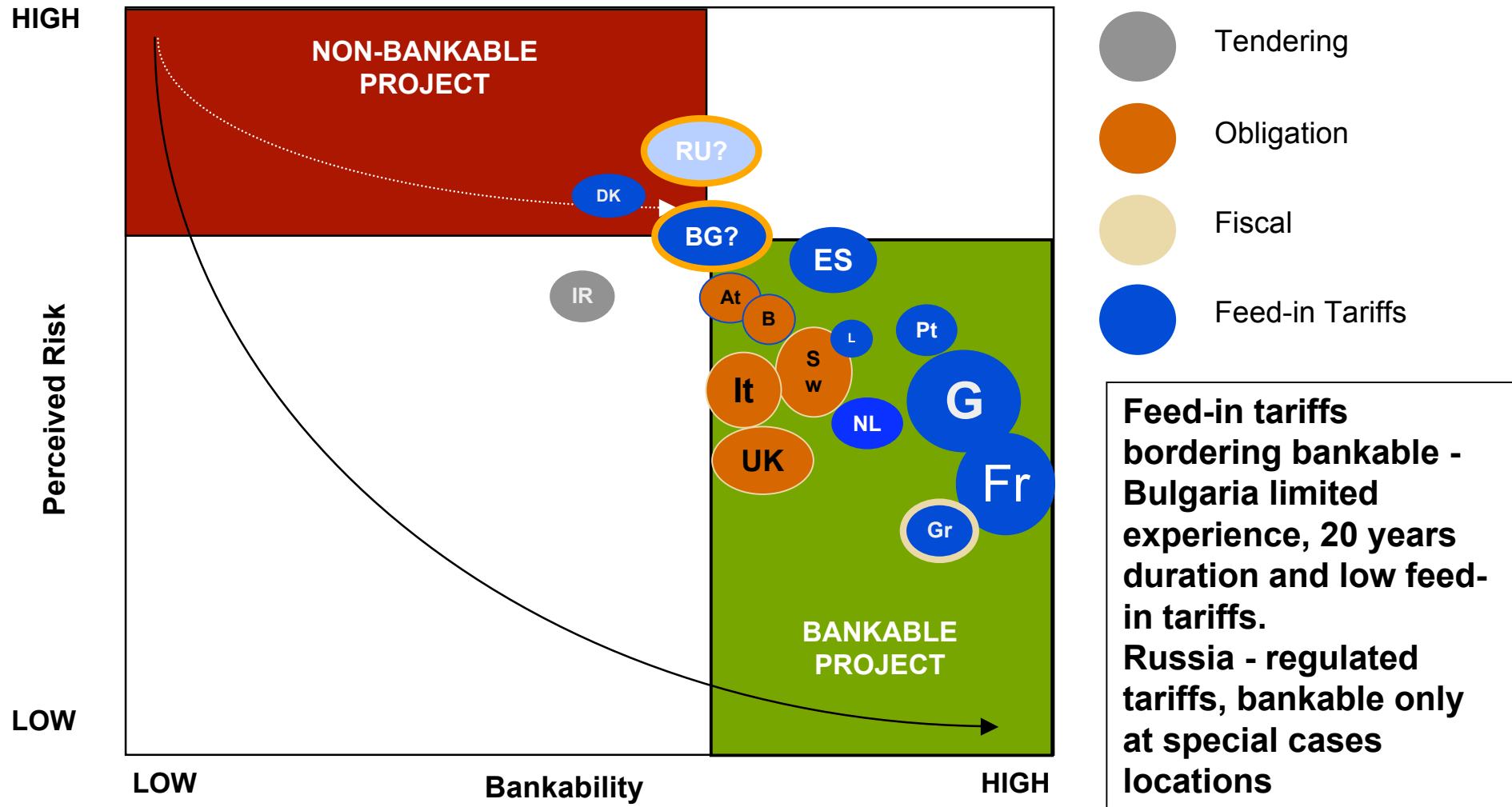
- Hydro
- Wind
 - Licensed: 14,000 MW;
 - Installed: 337 MW;
 - Investment required: \$20 - \$25 billion
- Biomass
- Geothermal
- Solar
 - Licensed: 3,500 MW;
 - Installed: 7 MW;
 - Investment required: \$17.5 billion

...and investments to increase the grid carrying capacity not included

Energy Efficiency/Renewables: Main Investment Risks



Renewables and Government Support



Energy Efficiency and Renewable Energy Sup

A black downward-pointing arrow shape containing the text "GOVERNMENT SUPPORT" in white, uppercase letters.

GOVERNMENT
SUPPORT

- Legal and institutional framework for energy efficiency and renewable energy.
- Availability of financial infrastructure and fiscal mechanisms to allow investments in efficiency/renewables projects.
- Kyoto Protocol and/or mechanisms to provide incentives or requirements for support to the implementation of efficiency/renewable project.
- Clear legal regime for contracting, land ownership, taxation, licensing, permitting, connection.

Energy Efficiency and Renewable Situation



MARKET
ECONOMICS

- Significant potential for energy efficiency in industry and buildings.
- Varying potential for renewable energy country by country.
- By its nature and available potential wind/solar/hydro power will not provide a secure base load electricity supply.
- It is unclear whether feed-in tariffs imply that carbon credits accrue to Government.
- Licenses for windparks/solar have been awarded. Only a negligible number of MWs are installed nowadays.
- Limited installed capacity and few energy efficiency projects also indicate a supporting industry with limited experience.
- Limited installed capacity also indicates limited experience with offtake of unsecure power generation.
- Limited installed capacity also indicates a supporting financial sector with limited exposure and experience.

The Main Issues in Project Economics



PROJECT
ECONOMICS

- Verifiable feasibility studies, confirming the availability of renewable resource or savings.
- Strong track record and/or guaranteed performance of the equipment.
- Cost of technology/equipment, which allows economic generation/savings given the price of energy or incentives (cost per kWh).
- Sufficient level of price of energy or tariff to provide comfortable Returns on Equity and Debt Service Coverage Ratios.

Contractual Situation



CONTRACT
STRUCTURE

- Build, *operate* and/or transfer concession models faced quite strong legal problems.
- Connection to the electricity networks faces a lot of challenges and obstacles.
- The construction and equipment contracts are not likely to be signed with one party.
- A power purchase agreements are difficult to be applied in liberalised electricity markets.
- The contractual regime for ESCO, or third party finance, does not always allow the savings to be realised and properly attributed to the relevant party.
- Need for enforceable PPA, Turn-key contracts, Supply contracts, O&M and Connection contract.

Lenders' Security Issues



SECURITY
PACKAGE

- Lenders do not assume completion risks. These risks are allocated with EPC contractors (through retention of construction contract payments and liquidated damages on performance) and with equity providers (through contingent equity for cost overruns).
- For example, wind turbine manufacturers provide for a 5 to 10 year product warranty including a defects liability period as from commissioning. A supplier of technology to renewable or energy efficiency project with longer repayment period should be able to provide product warranties on its balance sheet.
- The legal regime should allow the land to be owned by the sponsor and used as a security.
- The suppliers of equipment should be able to attract comprehensive cover for the benefit of potential lenders (Export Credit Agency's cover). Without such coverage it is very unlikely to tap the commercial banks market.

Equity Considerations



SPONSOR
SUPPORT

- Banks would like to see a reputable sponsor in a transaction.
- The practice shows that 25% to 40% of project cost might be required in equity which depends on uncertainties related to the project.
- Contingent equity requirements in general amount to some 30% to 40% of the equity in a project. Such element needs to be addressed in the project's funding plan.
- Lower percentages of equity are generally only possible through lease schemes. These schemes require a counterparty purchasing the equipment at the end of the lease period.
- Using of mezzanine debt instruments usually alleviates this issue.

Bankability



FINANCIAL
STRUCTURING

Many uncertainties accompany a project.

The project will only attract sufficient finance if to a large extent:

1. Uncertainties are reduced
2. Risks are mitigated

What the banks often actually face



FINANCIAL
STRUCTURING

Main issues:

- complicated regime for support of renewables;
- unclear legal regime;
- opposition from local energy companies;
- contractual and implementation issues;
- inexperienced developers

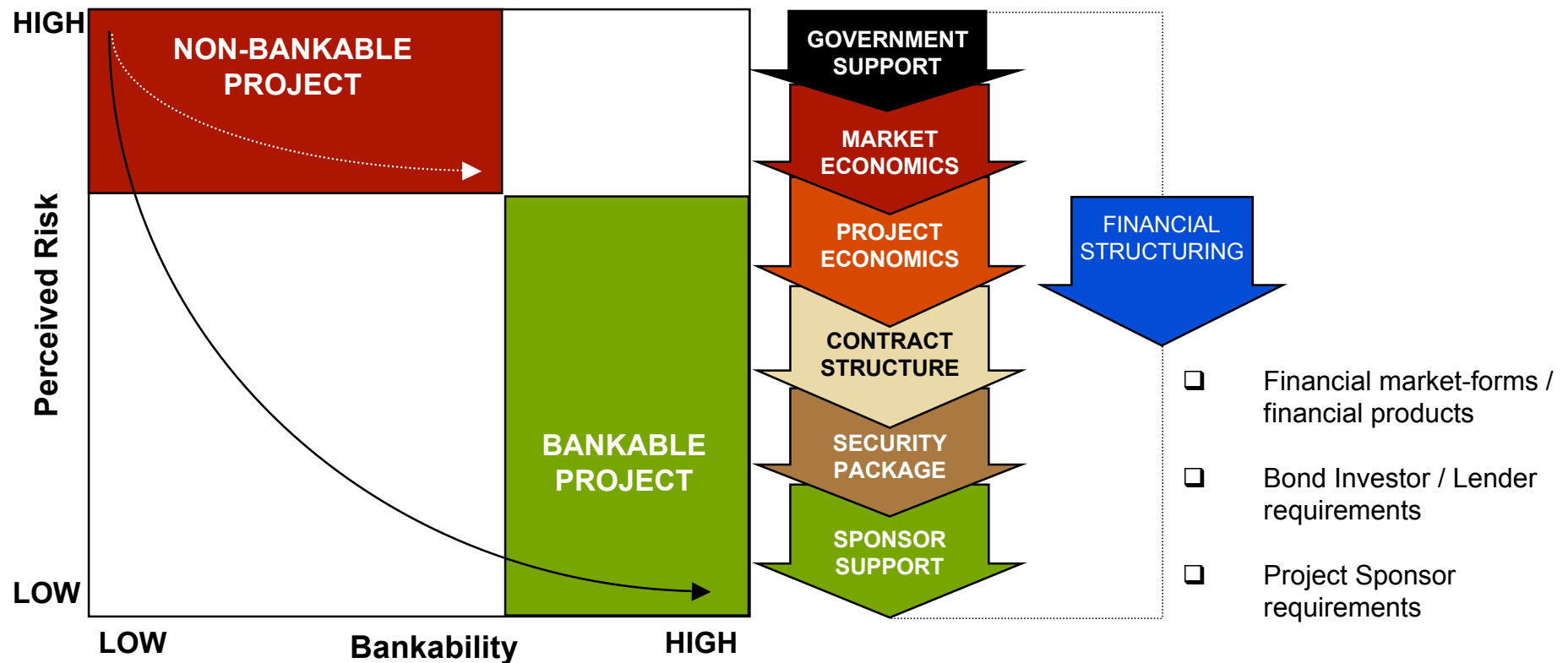
and ...

- Incomplete and badly presented proposals and business plans

As a result:

- few and incomplete applications
- small, and often non-bankable projects

The General Project Finance Feasibility Matrix



Need for Capacity Building

GOVERNMENT SUPPORT

- Capacity support to make the regulatory framework for energy savings and IPP's bankable?
- Capacity support to make Carbon credits possible?
- Capacity to implement scheme to support efficiency and renewables?

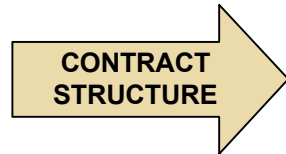
MARKET ECONOMICS

- Capacity to prepare long term strategies integrating renewables and efficiency?
- Capacity in the financial institutions to appraise a renewable or efficiency project?
- Capacity in the local industry to offer equipment and services?

PROJECT ECONOMICS

- Capacity to prepare and present viable business plan, including costs, revenues etc.?
- Capacity to request, finance, prepare, evaluate and verify feasibility studies?
- Capacity to consider different technical and financing options?

Need for Capacity Building



Capacity to prepare and negotiate PPA, Supply, Turn-key, O&M contracts?
Capacity to evaluate the technical and financial strength of a contractor?
Capacity to enforce a contract?



Capacity to build strong security package?
Capacity to arrange comprehensive risk coverage (ECAs, vendors)?
Capacity to arrange mortgage on land or other assets?



Capacity to have knowledgeable developers/sponsors?
Capacity to structure proper equity package?
Capacity to structure proper level of contingent equity available for completion?



CAPACITY TO STRUCTURE THE RIGHT FINANCIAL PACKAGE?

Need for Capacity Building

Needed:

Concerted efforts to build institutional capacity among:

- Governmental and municipal officials;
- Developers and;
- Investors

to utilise the existing potential for Energy Efficiency and Renewables through:

- Strengthening energy efficiency and renewables policies;
- Assisting developers and municipalities to identify, prepare and present viable investment grade proposals and;
- Promote opportunities to invest.

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