

BOT

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## **Abstract**

This paper assesses two alternative approaches to private sector engagement in utilities, namely the Build Operate Transfer (BOT) and sector-wide reforms. The assessment draws on the new theory of regulatory contracts. The paper first evaluates the two approaches in terms of their effectiveness in dealing with the problems of information asymmetry, incentive compatibility and commitment. It then reviews the evidence on the economic impact of both approaches. Finally, it applies this analysis to the electricity sector in four Arab countries, namely, Egypt, Jordan, Morocco and Syria. The paper concludes that sector reforms may not be as effective in attracting private investment in the short run as BOTs. However, the sector approach is more beneficial to society in the medium term.

(BOT)

(BOT)

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|-----------------------|-----------------------|-----|-------------------------------------|
|                       |                       |     |                                     |
| (Natural              |                       |     |                                     |
| )                     |                       |     | Monopolies)                         |
| (New Theory of        |                       | .(  |                                     |
| (Imperfect Contracts) |                       |     | Regulation) (Information Asymmetry) |
|                       | .(Regulatory Capture) |     |                                     |
|                       |                       |     |                                     |
| ·                     | :                     |     |                                     |
| .BOT                  |                       |     | (Multiple Contracts)                |
| (BOOT)                | (BOT)                 | ВОТ | .(BO)                               |

|   | (Independent Power Producers) |
|---|-------------------------------|
| ·                                       | ·                             |
|   |                               |
| (Regulatory Contracts)                  |                               |
| вот .                                   | •                             |
| · .                                     |                               |
|   |                               |
| . (Information Asymmetry)               |                               |
|   |                               |
|   | -                             |
|   | .ВОТ                          |
| ·                                       | .501                          |
| .Chisari, Estache and Romero (1997); an | nd Galal et al. (1994)        |

|                    |                | (New Theory of Regu    | lation)    |             |
|--------------------|----------------|------------------------|------------|-------------|
|                    |                | (Principal-Agent       | Problem)   |             |
| (                  | )              |                        | (          | )           |
|                    | Ex Post        |                        |            |             |
| (Manage            | ement Utility) |                        |            |             |
| (Information Rent) |                |                        |            |             |
| .(                 |                | )                      |            |             |
|                    | (Cost          | Padding)               |            |             |
|                    |                |                        |            |             |
|                    |                |                        |            |             |
|                    |                | (                      |            | ١           |
|                    |                | .(                     |            | )           |
| (7. 4.7.           | :              |                        |            |             |
| (Rate of Return    |                |                        |            | •           |
|                    |                | •                      |            | Regulation) |
|                    |                | (Price-Cap Regulation) |            |             |
|                    |                |                        |            |             |
|                    |                | (Inverse Elasti        | city Rule) |             |
|                    |                |                        |            |             |
|                    |                |                        |            |             |
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|                    |                |                        |            | •           |
|                    | •              |                        |            |             |
|                    |                |                        |            |             |

.Laffont and Tirole (1993)

.Caillaud, Guesnerie, Rey, and Tirole (1988); and Benasko and Sappington (1987)

|                        | .EX Post             |                 | (Imperfect Contracts)                 |
|------------------------|----------------------|-----------------|---------------------------------------|
|                        | (Asset Specifity     | y)              |                                       |
|                        |                      |                 |                                       |
| (information .         |                      | ():<br>()<br>() | (Information Asymmetry) Rent)         |
| (Ventical Integration) | (Information Asymmet | try)            |                                       |
| (Vertical Integration) | ·                    |                 |                                       |
|                        |                      | Hart a          | nd Holmstrom (1987) Williamson (1989) |

|                         | •   |                    |                   |           |        |
|-------------------------|-----|--------------------|-------------------|-----------|--------|
| (Competition            |     | ·                  |                   |           |        |
|                         |     |                    |                   | by Compa  | rison) |
|                         |     | (                  |                   | )         |        |
| (Competition            |     |                    |                   |           |        |
|                         |     |                    |                   | for the M | arket) |
|                         |     |                    |                   |           |        |
|                         |     |                    |                   |           |        |
| .(Unbundling)           |     |                    |                   |           |        |
|                         |     |                    |                   |           |        |
|                         | .(  |                    |                   | )         |        |
|                         |     |                    | ,                 |           | `      |
|                         |     |                    | .(                |           | )      |
| ( )                     | •   |                    |                   |           |        |
| ( )                     |     |                    |                   |           |        |
|                         |     |                    |                   |           |        |
|                         |     | (1                 | (nformation Rent) |           |        |
|                         |     |                    |                   |           |        |
| .(Price-Cap Regulation) | •   | (Rate of Return Re | oulation)         |           |        |
| .(Thee Cup regulation)  |     | (Rate of Retain Re |                   |           |        |
|                         |     |                    |                   |           |        |
|                         |     | k Regulation) "    | п                 |           |        |
|                         | . " |                    |                   |           |        |

.(RPI-X)

(Cost Padding)

.(Residual Claimant)

(Laffont, 2001)

Laffont

(Rate of Return Regulation)

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| (BOT) |
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|       |
| 88)   |
| Rule) |
| 96)   |
|       |

|                              |        | BOT                     |
|------------------------------|--------|-------------------------|
| (Vertically Integ            | rated) |                         |
|                              |        |                         |
| (                            | )      |                         |
| (                            | )      | •                       |
| (Purchasing Power Agreements |        | )                       |
|                              |        |                         |
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|                              |        |                         |
|                              |        |                         |
|                              |        |                         |
|                              |        |                         |
|                              |        | (Information Asymmetry) |
|                              |        | (Information Rent)      |
|                              |        |                         |
|                              |        | (Unbundling)            |
| •                            |        |                         |
|                              |        |                         |
| (Competition for the Market) |        |                         |
|                              |        |                         |
|                              |        |                         |
|                              |        |                         |
|                              |        |                         |

| (Spot Market)                 | ( | ) |
|-------------------------------|---|---|
| (Independent Power Producers) |   |   |
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|--------------------|------|-----|-----|-----------|
| (Independent Power |      | ВОТ |     | Producer) |
|                    |      |     | BOT |           |
|                    | РОТ  |     |     |           |
|                    | .ВОТ |     |     |           |

| .BOT                                |                         |   | •           |
|-------------------------------------|-------------------------|---|-------------|
|                                     | ( )                     |   |             |
| )                                   | -                       |   |             |
|                                     | (Divestitures)          |   | (           |
| (Greenfield                         | (21,000,000,00)         |   |             |
|                                     | .BOT                    |   | Projects)   |
|                                     |                         |   |             |
|                                     |                         |   |             |
| Galal et al. (1994)                 | .ВОТ                    |   |             |
|                                     |                         |   |             |
|                                     | .(Enersis)              | , | (Chilgener) |
| Chisari, Estache, and Romero (1997) |                         | ( | )           |
|                                     |                         |   |             |
| .(Computable General Equili         | brium Model)            |   |             |
|                                     |                         |   |             |
|                                     | Galal and Nuryal (1994) |   |             |

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Source: Private Participation in Energy, Public Policy for the Private Sector, Note No. 208, PPI Project, World Bank.

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(Take-or-Pay Contracts)
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(Gray and Schuster, 1998)

(Vertically Integrated) BOT

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.(EDECO) (IDECO)
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        .(
                                     BOT
              (Vertically Integrated)
   .(Cross Subsidization)
                                             BOT
                                            .BOT
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|     |     | /     |       |       |
|     |     |       |       |       |
|     | ВОТ | BOT / | BOT / | BOT / |

(Muller, 2001)

(Independent Power

Producers)

BOT

|                      |                         | •    | вот         |                    |
|----------------------|-------------------------|------|-------------|--------------------|
|                      |                         |      |             |                    |
| )                    |                         | ·    | (           |                    |
|                      |                         | ·    |             | ВОТ                |
| (Office Nationale de | (Vertically Integrated) |      |             | L'Electricite)     |
|                      |                         | ·    | (Independen | t Power Producers) |
|                      |                         | .ВОТ | (           | )                  |
| )                    |                         |      |             | ı                  |

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.BOT .

ВОТ

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. (Devil is in the details)

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