

## Regulatory Indicators for Sustainable Energy (RISE) 2016 Country Data - Pakistan

### Energy Access

| Indicator  | Score        |
|--|--------------|
| Existence and monitoring of officially approved electrification plan | 0            |
| Scope of officially approved electrification plan                    | 0            |
| Framework for grid electrification                                   | 83.33        |
| Framework for minigrids  | 74.17        |
| Framework for stand-alone systems                                    | 73.33        |
| Consumer affordability of electricity                                | 100          |
| Utility Transparency and Monitoring                                  | 95.82        |
| Utility Creditworthiness   | 44.65        |
| <b>Total</b>   | <b>58.91</b> |

### Energy Efficiency

| Indicator   | Score        |
|---|--------------|
| National energy efficiency planning                       | 66.67        |
| Energy efficiency entities                                | 100          |
| Information provided to consumers about electricity usage | 62.5         |
| EE incentives from electricity rate structures            | 74.07        |
| Incentives & mandates: large consumers                    | 33.33        |
| Incentives & mandates: public sector                      | 0            |
| Incentives & mandates: utilities                          | 16.67        |
| Financing mechanisms for energy efficiency                | 0            |
| Minimum energy efficiency performance standards           | 16.67        |
| Energy labeling systems                                   | 25           |
| Building energy codes                                     | 66.67        |
| Carbon Pricing  | 0            |
| <b>Total</b>  | <b>38.46</b> |

## Regulatory Indicators for Sustainable Energy (RISE)

### Renewable Energy

| Indicator  | Score     |
|--|-----------|
| Legal framework for renewable energy                   | 100       |
| Planning for renewable energy expansion                | 59        |
| Incentives and regulatory support for renewable energy | 100       |
| Attributes of financial and regulatory incentives      | 100       |
| Network connection and pricing                         | 100       |
| Counterparty risk                                      | 80        |
| Carbon pricing and monitoring                          | 0         |
| <b>Total</b>   | <b>77</b> |

|                      |              |
|----------------------|--------------|
| <b>Overall Score</b> | <b>58.12</b> |
|----------------------|--------------|

### Energy Access

| Existence and monitoring of officially approved electrification plan                            | Score | 0  |
|---|-------|----|
| Is there an officially approved national electrification plan?                                  |       | No |
| If not, is there a draft electrification plan that has been prepared but not yet been approved? |       | No |
| Name of the electrification plan  |       | 0  |
| Are the electrification plan and the updates publicly available?                                |       | No |
| When was the last update of the electrification plan?   |       | 0  |
| Is there an institution responsible for tracking progress of the plan?                          |       | No |
| Name of the tracking institution  |       | 0  |

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|   |    |
|---|----|
| Is there a timeframe defined in the electrification plan? | No |
|---|----|

| Scope of officially approved electrification plan  | Score | 0  |
|--|-------|----|
| Does the plan target a service level (e.g., power availability, number of guaranteed hours of power supply, etc.)? |       | No |
| Details on service level target  |       | 0  |
| Does the electrification plan include both grid and off-grid?  |       | No |
| Does the plan include community facilities?  |       | No |
| Does the plan include productive use?  |       | No |
| Are there geospatial maps conveying the timeframe of planned grid extension?                                       |       | No |
| Are these geospatial maps made publicly available?   |       | No |

| Framework for grid electrification  | Score | 83.33   |
|---|-------|---|
| Does the government have a dedicated funding line or budget for electrification (e.g., funded national program, budget item, rural electrification fund to finance grid extension)?           |       | Yes   |
| Are there capital subsidies paid to the utilities to provide distribution systems to rural areas/villages?  |       | No  |
| Details on funding support for grid electrification   |       | N/A   |
| Are there consumer financing mechanisms (i.e., utility loans, on bill financing, micro-loans, etc.) and/or direct subsidies available to support the payment of connection fees by consumers? |       | Yes   |
| Details on mechanisms to support the payment of connection fees   |       | Payment in two steps: 1. Rs 300 at the time of connection, 2. Rs 2,700 in |

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|  |  |
|--|--|
|  | nine equal installment of Rs 300 in each subsequent bill |
| Does the government specify standards of performance on reliability along with new connections (e.g., number of guaranteed hours per day, etc.)? | Yes  |

| Framework for minigrids   | Score | 74.17  |
|---|-------|--|
| Are minigrids legally allowed to operate in the country?  |       | Yes  |
| Name and date of the regulation for minigrids   |       | Policy for Development of Renewable Energy for Power Generation - 2006 |
| Can minigrids be owned and operated by private operators?   |       | Yes  |
| Do regulations clarify what will occur when the interconnected grid reaches a mini-grid?  |       | Yes  |
| To convert from a power producer to a power distributor that buys electricity from the interconnected grid and resells to its local customers |       | Yes  |
| To sell electricity to the interconnected grid operator and no longer sell electricity to retail customers                                    |       | Yes  |
| To sell its distribution grid to the interconnected grid operator and receive compensation for the sale of the asset                          |       | Yes  |
| Other   |       | No   |
| Do the regulations detail procedures for consumers to get connected to minigrids?   |       | No   |
| Do the regulations differ by size of minigrids?   |       | Yes  |
| Are mini-grid operators legally allowed to charge a different tariff from the national tariff?  |       | Yes  |

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|---|--|
| Is there a retail electricity tariff schedule for minigrids?                        | No   |
| Examples of minigrid tariffs  | The Aga Khan Rural Support Programme developed about 200 mini-grid projects and each one of the project has its own traffic schedule which is dependent upon project cost. |
| Name of the regulation on minigrid tariffs  | Notification SRO 892 -2015-3 NEPRA (Alternative & Renewable Energy) Distributed Generation and Net Metering Regulations, 2015  |
| Are there publicly funded mechanisms to secure viability gap funding for operators? | No   |
| Do subsidies exist for minigrids?   | No   |
| Details on subsidies for minigrids  | Capital subsidy to off-grid small hydro projects (AEDB Renewable Energy Policy)  |
| Name of the document referring to minigrid subsidies                                | Renewable Energy Policy - 2006   |
| Do subsidies exist for power generators?  | Yes  |
| Do subsidies exist for energy storage systems?                                      | No   |
| Do subsidies exist for distribution systems?  | No   |
| Do subsidies exist for monitoring systems?  | No   |
| Do subsidies exist for other equipment related to minigrids?                        | No   |

## Regulatory Indicators for Sustainable Energy (RISE)

|  |   |
|--|---|
| Do duty exemptions exist for minigrid systems?                         | No  |
| Details on duty exemptions for minigrids                               | Generators for wind turbines and solar dish sterling engine exempted from custom duty |
| Name of the document referring to mini-grid duty exemptions            | EA.23 5th Schedule and Customs Tariff   |
| Do duty exemptions exist for power generators?                         | Yes   |
| Do duty exemptions exist for energy storage systems?                   | Yes   |
| Do duty exemptions exist for distribution systems?                     | No  |
| Do duty exemptions exist for monitoring systems?                       | No  |
| Do duty exemptions exist for other equipment related to minigrids?     | No  |
| Do subsidies exist for stand-alone systems?                            | No  |
| Do subsidies exist for solar modules?                                  | No  |
| Do subsidies exist for batteries?                                      | No  |
| Do subsidies exist for charge controllers?                             | No  |
| Do subsidies exist for power conditioning equipment?                   | No  |
| Do subsidies exist for safety equipment?                               | No  |
| Do subsidies exist for other equipment related to stand-alone systems? | No  |
| Details on subsidies for stand-alone systems                           | 0   |
| Name of the document referring to subsidies for stand-alone systems    | 0   |

## Regulatory Indicators for Sustainable Energy (RISE)

|  |   |
|--|---|
| Do duty exemptions exist for stand-alone systems?  | No  |
| Details on duty exemptions for stand-alone systems   | Duty exemptions for stand-alone systems imported into the country |
| Name of the document referring to duty exemptions for stand-alone systems  | 5th Schedule and Customs Tariff                                   |
| Do duty exemptions exist for solar modules?  | Yes   |
| Do duty exemptions exist for batteries?  | Yes   |
| Do duty exemptions exist for charge controllers?   | No  |
| Do duty exemptions exist for power conditioning equipment?   | No  |
| Do duty exemptions exist for safety equipment?   | No  |
| Do duty exemptions exist for other equipment related to stand-alone systems?   | No  |
| Are there legal restrictions that limit the prices standalone home system retailers or service providers can charge?           | No  |
| Are there specific financing facilities available to support operators/consumers to develop/purchase stand-alone home systems? | Yes   |
| Are there specific market financing facilities available to support operators to develop stand-alone systems?                  | No  |
| Are there specific government financing facilities available to support operators to develop stand-alone systems?              | No  |
| Are there specific market financing facilities available to support consumers to purchase stand-alone standalone systems?      | Yes   |
| Are there specific government financing facilities available to support consumers to purchase stand-alone standalone systems?  | No  |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |   |
|---|---|
| Are there technical standards detailing the requirements for minigrids to connect the grid?                                   | Yes   |
| Are technical standards made publicly available?  | Yes   |
| Name of the document detailing technical standards  | Notification SRO 892<br>-2015-3 NEPRA<br>(Alternative & Renewable Energy) Distributed Generation and Net Metering Regulations, 2015<br>Distribution Code 2005<br>Grid Code 2005 |
| Are there safety standards for minigrids?   | Yes   |
| Are these safety standards made publicly available?   | Yes   |
| Name of the document detailing safety standards   | Notification SRO 892<br>-2015-3 NEPRA<br>(Alternative & Renewable Energy) Distributed Generation and Net Metering Regulations, 2015   |
| Does the government implement certification programs for minigrid installers?   | No  |
| Does the government provide or endorse certification programs for one or more components or equipment required for minigrids? | No  |
| Has the government adopted international quality standards for stand-alone systems?   | No  |
| Name of the document detailing quality standards  | 0   |
| Has the government adopted international testing methods?   | No  |
| Does the regulation accept testing done elsewhere/in another country (vs in-country testing required)?                        | Yes   |



## Regulatory Indicators for Sustainable Energy (RISE)

|   |    |
|---|----|
| Is there a governmental certified program for solar equipment installers?   | No |
| Are there environmental regulations on the disposal of solar devices and standalone home system products or components? | No |
| Name of document detailing environmental regulations  | 0  |

| Framework for stand-alone systems   | Score   | 73.33 |
|---|---|-------|
| Are there publicly funded mechanisms to secure viability gap funding for operators? | No  |       |
| Do subsidies exist for minigrids?   | No  |       |
| Details on subsidies for minigrids  | Capital subsidy to off-grid small hydro projects (AEDB Renewable Energy Policy)       |       |
| Name of the document referring to minigrid subsidies                                | Renewable Energy Policy - 2006  |       |
| Do subsidies exist for power generators?  | Yes   |       |
| Do subsidies exist for energy storage systems?                                      | No  |       |
| Do subsidies exist for distribution systems?  | No  |       |
| Do subsidies exist for monitoring systems?  | No  |       |
| Do subsidies exist for other equipment related to minigrids?                        | No  |       |
| Do duty exemptions exist for minigrid systems?                                      | No  |       |
| Details on duty exemptions for minigrids  | Generators for wind turbines and solar dish sterling engine exempted from custom duty |       |

## Regulatory Indicators for Sustainable Energy (RISE)

| Name of the document referring to mini-grid duty exemptions            | EA.23 5th Schedule and Customs Tariff                             |
|--|---|
| Do duty exemptions exist for power generators?                         | Yes   |
| Do duty exemptions exist for energy storage systems?                   | Yes   |
| Do duty exemptions exist for distribution systems?                     | No  |
| Do duty exemptions exist for monitoring systems?                       | No  |
| Do duty exemptions exist for other equipment related to minigrids?     | No  |
| Do subsidies exist for stand-alone systems?                            | No  |
| Do subsidies exist for solar modules?                                  | No  |
| Do subsidies exist for batteries?                                      | No  |
| Do subsidies exist for charge controllers?                             | No  |
| Do subsidies exist for power conditioning equipment?                   | No  |
| Do subsidies exist for safety equipment?                               | No  |
| Do subsidies exist for other equipment related to stand-alone systems? | No  |
| Details on subsidies for stand-alone systems                           | 0   |
| Name of the document referring to subsidies for stand-alone systems    | 0   |
| Do duty exemptions exist for stand-alone systems?                      | No  |
| Details on duty exemptions for stand-alone systems                     | Duty exemptions for stand-alone systems imported into the country |

## Regulatory Indicators for Sustainable Energy (RISE)

| Name of the document referring to duty exemptions for stand-alone systems  | 5th Schedule and Customs Tariff    |
|--|------------------------------------|
| Do duty exemptions exist for solar modules?  | Yes                                |
| Do duty exemptions exist for batteries?  | Yes                                |
| Do duty exemptions exist for charge controllers?   | No                                 |
| Do duty exemptions exist for power conditioning equipment?   | No                                 |
| Do duty exemptions exist for safety equipment?   | No                                 |
| Do duty exemptions exist for other equipment related to stand-alone systems?   | No                                 |
| Are there legal restrictions that limit the prices standalone home system retailers or service providers can charge?           | No                                 |
| Are there specific financing facilities available to support operators/consumers to develop/purchase stand-alone home systems? | Yes                                |
| Are there specific market financing facilities available to support operators to develop stand-alone systems?                  | No                                 |
| Are there specific government financing facilities available to support operators to develop stand-alone systems?              | No                                 |
| Are there specific market financing facilities available to support consumers to purchase stand-alone standalone systems?      | Yes                                |
| Are there specific government financing facilities available to support consumers to purchase stand-alone standalone systems?  | No                                 |
| Are there technical standards detailing the requirements for minigrids to connect the grid?                                    | Yes                                |
| Are technical standards made publicly available?   | Yes                                |
| Name of the document detailing technical standards   | Notification SRO 892 -2015-3 NEPRA |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |  |
|---|--|
|   | (Alternative & Renewable Energy) Distributed Generation and Net Metering Regulations, 2015 Distribution Code 2005 Grid Code 2005 |
| Are there safety standards for minigrids?   | Yes  |
| Are these safety standards made publicly available?   | Yes  |
| Name of the document detailing safety standards   | Notification SRO 892 -2015-3 NEPRA (Alternative & Renewable Energy) Distributed Generation and Net Metering Regulations, 2015    |
| Does the government implement certification programs for minigrid installers?   | No   |
| Does the government provide or endorse certification programs for one or more components or equipment required for minigrids? | No   |
| Has the government adopted international quality standards for stand-alone systems?   | No   |
| Name of the document detailing quality standards  | 0  |
| Has the government adopted international testing methods?   | No   |
| Does the regulation accept testing done elsewhere/in another country (vs in-country testing required)?                        | Yes  |
| Is there a governmental certified program for solar equipment installers?   | No   |
| Are there environmental regulations on the disposal of solar devices and standalone home system products or components?       | No   |
| Name of document detailing environmental regulations  | 0  |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |   |
|---|---|
| Are there national programs which aim to develop stand-alone systems or support the development of stand-alone systems? | Yes   |
| Details on the national program promoting stand-alone systems   | Roshan Pakistan Program and Parliamentarian Schemes for Rural Electrification: more than 8,000 villages to be electrified through renewable energy technologies. Other similar initiatives include solar street lighting, commercial lighting for billboards are also being looked into. All these initiatives are handled by Alternative Energy Development Board. |

| <b>Consumer affordability of electricity</b>  | <b>Score</b> | <b>100</b>   |
|---|--------------|--|
| What is the annual cost of subsistence consumption (30kWh/month) as a percentage of GNI per household of bottom 20 percent of population? |              | 0.152605592834401%                                 |
| Tariff schedule / tariff structure taken into account   |              | Official Gazette Government of Pakistan, July 2015 |
| Is there a mechanism to support low-volume consumers such as cross-subsidization, social or lifeline tariff?                              |              | Yes  |

| <b>Utility Transparency and Monitoring</b>   | <b>Score</b> | <b>95.82</b> |
|--|--------------|--------------|
| Are the financial statements of the largest generation company publicly available?   |              | Yes          |
| Are the financial statements of the largest transmission company publicly available? |              | No           |

## Regulatory Indicators for Sustainable Energy (RISE)

|  |     |
|--|-----|
| Are the financial statements of the largest distribution company publicly available?   | Yes |
| Are the financial statements of the largest retail electricity sales company publicly available?   | Yes |
| Are the financial statements of the largest generation company audited?  | Yes |
| Are the financial statements of the largest transmission company audited?  | Yes |
| Are the financial statements of the largest distribution company audited?  | Yes |
| Are the financial statements of the largest retail electricity sales company audited?  | Yes |
| Is the transmission loss rate published in a primary official document (by the utility, regulator or ministry and/or government)?                                | Yes |
| Is the distribution loss rate published in a primary official document (by the utility, regulator or ministry and/or government)?                                | Yes |
| Is the bill collection rate published in a primary official document (by the utility, regulator or ministry and/or government)?                                  | Yes |
| Is the amount of electricity available for sale to end-users published in a primary official document (by the utility, regulator or ministry and/or government)? | Yes |
| Is the utility operating an incidence/outage recording system (or SCADA/EMS with such functionality)?  | Yes |
| Is the utility measuring the SAIDI and SAIFI or any other measurements for service reliability?  | Yes |
| Are the measurements reported to the regulatory body?  | Yes |
| Are the measurements available to public?  | Yes |

## Regulatory Indicators for Sustainable Energy (RISE)

| <b>Utility Creditworthiness</b>                           | <b>Score</b> | <b>44.65</b> |
|---|--------------|--------------|
| Current ratio (working capital ratio) of selected utility |              | 0            |
| EBITDA margin of selected utility                         |              | 19.645       |
| Debt service coverage ratio of selected utility           |              | 25           |
| Days payable outstanding of selected utility              |              | 0            |

### Energy Efficiency

| <b>National energy efficiency planning</b>                               | <b>Score</b> | <b>66.67</b>                            |
|--|--------------|---|
| Is there legislation or a national action plan that aims to increase EE? |              | Yes                                     |
| Name of EE legislation or action plan                                    |              | Energy of 11th Five Year Plan (213 -18) |
| Is there an energy efficiency goal or target at the national level?      |              | Yes                                     |
| Natonal target details   |              | 1,000 MW by 2018                        |
| Is there a target for the residential sector?                            |              | No                                      |
| Target details   |              | No defined target for this sector yet.  |
| Does the target have a milestone or deadline?                            |              | No                                      |
| Is there a commercial servcies sector target?                            |              | No                                      |
| Target details   |              | No defined target for this sector yet.  |
| Does the target have a milestone or deadline?                            |              | No                                      |
| Is there an industrial sector target?                                    |              | No                                      |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |  |
|---|--|
| Target details                                | No defined target for this sector yet. |
| Does the target have a milestone or deadline? | No                                     |
| Is there a power sector target?               | No                                     |
| Target details                                | No defined target for this sector yet. |
| Does the target have a milestone or deadline? | No                                     |

| Energy efficiency entities   | Score  | 100 |
|--|--|-----|
| Are there governmental and/or independent bodies dedicated to setting EE strategy?                               | Yes  |     |
| Name of entity   | ENERCON/NEECA  |     |
| Are there governmental and/or independent bodies dedicated to setting EE standards?                              | Yes  |     |
| Name of entity   | Pakistan Energy Efficiency and Conservation Act 2015 |     |
| Are there governmental and/or independent bodies dedicated to regulating EE activities of energy suppliers?      | Yes  |     |
| Name of entity   | ENERCON/NEECA  |     |
| Are there governmental and/or independent bodies dedicated to regulating EE activities of energy consumers?      | Yes  |     |
| Name of entity   | ENERCON/NEECA  |     |
| Are there governmental and/or independent bodies dedicated to certifying compliance with equipment EE standards? | Yes  |     |



## Regulatory Indicators for Sustainable Energy (RISE)

|  |                                  |
|--|----------------------------------|
| Name of entity   | ENERCON/NEECA                    |
| Are there governmental and/or independent bodies dedicated to certifying compliance with building EE standards?                                    | Yes                              |
| Name of entity   | ENERCON/NEECA and Municipalities |
| Are there governmental and/or independent bodies dedicated to selecting and/or approving third party auditors tasked with certifying EE standards? | Yes                              |
| Name of entity   | ENERCON/NEECA                    |

| <b>Information provided to consumers about electricity usage</b>                                     | <b>Score</b> | <b>62.5</b> |
|--|--------------|-------------|
| Residential customers  |              |             |
| Is it mandatory for utilities to provide reports of their energy usage, in a bill or by other means? | Yes          |             |
| Commercial customers   |              |             |
| Is it mandatory for utilities to provide reports of their energy usage, in a bill or by other means? | Yes          |             |
| Industrial customers   |              |             |
| Is it mandatory for utilities to provide reports of their energy usage, in a bill or by other means? | Yes          |             |
| Residential customers  |              |             |
| At what intervals do customers receive these reports (times per year)?                               | 12           |             |
| Do the reports include the price levels customers pay for energy usage?                              | Yes          |             |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |     |
|---|-----|
| Commercial customers  |     |
| At what intervals do customers receive these reports (times per year)?  | 12  |
| Do the reports include the price levels customers pay for energy usage?   | Yes |
| Industrial customers  |     |
| At what intervals do customers receive these reports (times per year)?  | 12  |
| Do the reports include the price levels customers pay for energy usage?   | Yes |
| Does the regulator track utilities' compliance with laws for providing energy usage information to customers?   | Yes |
| Residential customers   |     |
| Do customers receive a bill or report which compares them to other users in the same region and/or usage class? | No  |
| Method of comparison  | N/A |
| Commercial customers  |     |
| Do customers receive a bill or report which compares them to other users in the same region and/or usage class? | No  |
| Method of comparison  | N/A |
| Industrial customers  |     |
| Do customers receive a bill or report which compares them to other users in the same region and/or usage class? | No  |
| Method of comparison  | N/A |
| Residential customers   |     |

## Regulatory Indicators for Sustainable Energy (RISE)

|  |     |
|--|-----|
| Do customers receive a bill or report that shows their energy usage compared to previous bills or reports over time?                           | Yes |
| Commercial customers   |     |
| Do customers receive a bill or report that shows their energy usage compared to previous bills or reports over time?                           | Yes |
| Industrial customers   |     |
| Do customers receive a bill or report that shows their energy usage compared to previous bills or reports over time?                           | Yes |
| All customers  |     |
| Can customers access real time feedback on energy usage (for either prepaid or post-paid systems)?   | No  |
| Do customers have the ability to manage energy usage levels remotely (through apps or other technology mediums that can track real time usage? | No  |

| <b>EE incentives from electricity rate structures</b> | <b>Score</b> | <b>74.07</b> |
|---|--------------|--------------|
| Residential customers                                 |              |              |
| Are customers charged a flat fee (per connection)?    | Yes          |              |
| Are customers charged constant block rates?           | No           |              |
| Are customers charged declining block rates?          | No           |              |
| Are customers charged increasing block rates?         | Yes          |              |
| Commercial customers                                  |              |              |
| Are customers charged a flat fee (per connection)?    | Yes          |              |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |     |
|---|-----|
| Are customers charged constant block rates?         | No  |
| Are customers charged declining block rates?        | Yes |
| Are customers charged increasing block rates?       | No  |
| Industrial customers                                |     |
| Are customers charged a flat fee (per connection)?  | Yes |
| Are customers charged constant block rates?         | No  |
| Are customers charged declining block rates?        | Yes |
| Are customers charged increasing block rates?       | No  |
| Residential customers                               |     |
| Do customers pay energy charges (per kWh)?          | Yes |
| Do customers pay demand charges (per kW)?           | No  |
| Do customers pay reactive power charges (per kVAR)? | No  |
| Commercial customers                                |     |
| Do customers pay energy charges (per kWh)?          | Yes |
| Do customers pay demand charges (per kW)?           | No  |
| Do customers pay reactive power charges (per kVAR)? | No  |
| Industrial customers                                |     |
| Do customers pay energy charges (per kWh)?          | Yes |
| Do customers pay demand charges (per kW)?           | Yes |
| Do customers pay reactive power charges (per kVAR)? | Yes |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |     |
|---|-----|
| Residential customers   |     |
| Are customers charged based on real-time pricing?                                       | No  |
| Are customers charged based on variable peak pricing?                                   | Yes |
| Are customers charged based on critical peak pricing?                                   | No  |
| Are tariffs adjusted according to seasons?  | No  |
| Do customers pay according to time-of-day electricity use or receive peak-time rebates? | Yes |
| Commercial customers  |     |
| Are customers charged based on real-time pricing?                                       | No  |
| Are customers charged based on variable peak pricing?                                   | Yes |
| Are customers charged based on critical peak pricing?                                   | No  |
| Are tariffs adjusted according to seasons?  | No  |
| Do customers pay according to time-of-day electricity use or receive peak-time rebates? | Yes |
| Industrial customers  |     |
| Are customers charged based on real-time pricing?                                       | No  |
| Are customers charged based on variable peak pricing?                                   | Yes |
| Are customers charged based on critical peak pricing?                                   | No  |
| Are tariffs adjusted according to seasons?  | No  |
| Do customers pay according to time-of-day electricity use or receive peak-time rebates? | Yes |

## Regulatory Indicators for Sustainable Energy (RISE)

| Incentives & mandates: large consumers   | Score | 33.33   |
|--|-------|---|
| What is the threshold for classifying large consumers?   |       | Large users are defined as kWh/year.  |
| Large consumer EE mandate/incentive regulations  |       |   |
| Is it required for the consumption and/or savings of large-scale energy users to be tracked and documented on a regular basis? |       | No  |
| Are efficiency targets mandated for large consumers?   |       | No  |
| Details  |       | At present there are no targets for large scale users. In the proposed Act, there are penalties for non-compliance with regulatory obligations. |
| Are energy audits mandated for large consumers?  |       | No  |
| Are energy efficiency progress reports mandated for large consumers?   |       | No  |
| Interval of reports  |       | Not applicable  |
| Are energy-management systems mandated for large consumers?  |       | No  |
| Details  |       | Not applicable  |
| Are there penalties in place for non-compliance with regulatory obligations for large consumers?                               |       | Yes   |
| Is there a measurement and verification program in place?  |       | No  |
| Is verification done by a third party?   |       | No  |
| Are there financial incentives for large consumers to invest in energy efficiency?   |       | No  |
| Details  |       | Not applicable - No   |

## Regulatory Indicators for Sustainable Energy (RISE)

|  | incentives given to large scale users |
|--|---------------------------------------|
| Are there tax incentives for large consumers to invest in energy efficiency?   | No                                    |
| Are there other incentives for large consumers to invest in energy efficiency?   | No                                    |
| Details  | Not applicable                        |
| Is there a program to publicly recognize large-scale users that have achieved significant energy savings measures?                                     | Yes                                   |
| Are energy savings and/or financial savings publicized?  | Yes                                   |
| Does the program offer assistance (from a government or independent entity) to large-scale users to identify energy savings investments opportunities? | No                                    |
| Primary Energy Consumption (MJ - latest GTF data from 2012)  | 3590522.27                            |

| <b>Incentives &amp; mandates: public sector</b>  | <b>Score</b> | <b>0</b> |
|--|--------------|----------|
| Are there binding energy savings obligations for public buildings?   | No           |          |
| Are energy savings from efficiency activities at public buildings tracked (either in-house or by a third party)?   | No           |          |
| Are there binding energy savings obligations for other public facilities (may include water supply, wastewater services, municipal solid waste, street lighting, transportation, and heat supply)? | No           |          |
| Are energy savings from efficiency activities at other public facilities tracked?  | No           |          |
| Is there a specific policy or mandated guidelines for public procurement of energy-efficient products and services?  | No           |          |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |  |
|---|--|
| Public procurement guidelines for EE  | Energy Efficiency and Conservation Act 215 |
| Do public budgeting regulations and practices allow public entities to retain energy savings? | No   |
| Public budgeting regulations for EE   | Energy Efficiency and Conservation Act 215 |

| Incentives & mandates: utilities  | Score | 16.67   |
|---|-------|---|
| Name of utility energy efficiency regulation program  |       |   |
| Electricity generation  |       |   |
| Are utilities required to carry out energy efficiency activities in this area?                          | Yes   |   |
| Details   |       | K-Electric has set 18% (486 MW in 215) reduction - no specific target for generation. Focus areas are waste heat recovery and auxiliary consumption. The targets are set in MW. |
| Are energy savings or other target indicators measured to track performance in meeting EE requirements? | No    |   |
| Are the requirements measured/validated by an independent third party?                                  | No    |   |
| Are there penalties in place for non-compliance with EE requirements?                                   | No    |   |
| Are there mandates or incentives for new and/or brownfield co-generation?                               | No    |   |



## Regulatory Indicators for Sustainable Energy (RISE)

|   |   |
|---|---|
| Transmission & distribution   |   |
| Are utilities required to carry out energy efficiency activities in this area?                          | Yes   |
| Details   | K-Electric has set 18% (486 MW in 215) reduction - no specific target for T&D. Focus areas are reducing T&D losses as well as curtailing reactive power (power factor improvement)t |
| Are energy savings or other target indicators measured to track performance in meeting EE requirements? | Yes   |
| Are the requirements measured/validated by an independent third party?                                  | No  |
| Are there penalties in place for non-compliance with EE requirements?                                   | No  |
| Demand-side management -  |   |
| Are utilities required to carry out energy efficiency activities in this area?                          | Yes   |
| Details   | K-Electric has set 18% (486 MW in 2015) reduction - no specific target for demand-side management. Emphasis is on advisory service for load reduction                               |
| Are energy savings or other target indicators measured to track performance in meeting EE requirements? | No  |
| Are the requirements measured/validated by an independent third party?                                  | No  |

## Regulatory Indicators for Sustainable Energy (RISE)

|  |     |
|--|-----|
| Are there penalties in place for non-compliance with EE requirements?  | No  |
| Is there a demand-side management department within the selected utility?  | Yes |
| Do utilities provide customers incentives for demand response, such as peak-time rebates?  | No  |
| Is there public budget funding available for utilities to recover costs associated with or revenue lost from mandated energy efficiency activities?                                  | No  |
| Is there compensation for revenue losses via a tracking account available for utilities to recover costs associated with or revenue lost from mandated energy efficiency activities? | No  |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure?                        | No  |
| Are these available as government-driven financing mechanisms?   | No  |
| Are there credit lines available for utilities to recover costs associated with or revenue lost from mandated energy efficiency activities?  | No  |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure?                        | No  |
| Are these available as government-driven financing mechanisms?   | No  |
| Are there partial risk guarantees available for utilities to recover costs associated with or revenue lost from mandated energy efficiency activities?                               | No  |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure?                        | No  |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |    |
|---|----|
| Are these available as government-driven financing mechanisms?  | No |
| Is there program cost recovery available for utilities to recover costs associated with or revenue lost from mandated energy efficiency activities?           | No |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |
| Is there ESCO financing available for utilities to recover costs associated with or revenue lost from mandated energy efficiency activities?                  | No |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |
| Is there on-bill financing/re-payment available for utilities to recover costs associated with or revenue lost from mandated energy efficiency activities?    | No |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |
| Are there any other financing mechanisms available for utilities to recover costs associated with or revenue lost from mandated energy efficiency activities? | 0  |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |

## Regulatory Indicators for Sustainable Energy (RISE)

|  |    |
|--|----|
| Are these available as government-driven financing mechanisms? | No |
|--|----|

| <b>Financing mechanisms for energy efficiency</b>   | <b>Score</b> | <b>0</b> |
|---|--------------|----------|
| Residential sector  |              |          |
| Are there tax incentives available for energy efficiency investments?   | No           |          |
| Are there discounted "green" mortgages available for energy efficiency investments?   | No           |          |
| Is on-bill financing/re-payment available for energy efficiency investments?  | No           |          |
| Are credit lines available for energy efficiency investments?   | No           |          |
| Are energy services agreements or ESCOs available for energy efficiency investments?  | No           |          |
| Are green bonds available for energy efficiency investments?  | No           |          |
| Is vendor credit and/or leasing available for energy efficiency investments?  | No           |          |
| Are partial risk guarantees available for energy efficiency investments?  | No           |          |
| Are there any other financing mechanisms available for energy efficiency investments?   | No           |          |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No           |          |
| Are these available as government-driven financing mechanisms?  | No           |          |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |    |
|---|----|
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |
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| Are these available as government-driven financing mechanisms?  | No |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |
| Details   |    |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |
| Commercial services sector  |    |
| Are there tax incentives available for energy efficiency investments?   | No |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |    |
|---|----|
| Are there discounted "green" mortgages available for energy efficiency investments?   | No |
| Is on-bill financing/re-payment available for energy efficiency investments?  | No |
| Are credit lines available for energy efficiency investments?   | No |
| Are energy services agreements or ESCOs available for energy efficiency investments?  | No |
| Are green bonds available for energy efficiency investments?  | No |
| Is vendor credit and/or leasing available for energy efficiency investments?  | No |
| Are partial risk guarantees available for energy efficiency investments?  | No |
| Are there any other financing mechanisms available for energy efficiency investments?   | No |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |    |
|---|----|
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
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| Are these available as government-driven financing mechanisms?  | No |
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| Are these available as government-driven financing mechanisms?  | No |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |
| Details   |    |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |
| Industrial sector   |    |
| Are there tax incentives available for energy efficiency investments?   | No |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |    |
|---|----|
| Are there discounted "green" mortgages available for energy efficiency investments?   | No |
| Is on-bill financing/re-payment available for energy efficiency investments?  | No |
| Are credit lines available for energy efficiency investments?   | No |
| Are energy services agreements or ESCOs available for energy efficiency investments?  | No |
| Are green bonds available for energy efficiency investments?  | No |
| Is vendor credit and/or leasing available for energy efficiency investments?  | No |
| Are partial risk guarantees available for energy efficiency investments?  | No |
| Are there any other financing mechanisms available for energy efficiency investments?   | No |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |



## Regulatory Indicators for Sustainable Energy (RISE)

|   |    |
|---|----|
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |
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| Are these available as government-driven financing mechanisms?  | No |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |
| Details   |    |
| Are these available as solely market-driven financing mechanisms without any direct government approval, subsidy, authorization or other mediation procedure? | No |
| Are these available as government-driven financing mechanisms?  | No |

|  |              |              |
|--|--------------|--------------|
| <b>Minimum energy efficiency performance standards</b> | <b>Score</b> | <b>16.67</b> |
| EE standards regulations                               |              | ENERCON      |

## Regulatory Indicators for Sustainable Energy (RISE)

|   | Policy/Guidelines for Implementation of ES&L Scheme in Pakistan  |
|---|--|
| Refrigerators   |  |
| Have minimum energy performance standards been adopted?                 | No   |
| Details of standards  | There are no mandatory energy efficiency standards for refrigerators   |
| Is there a verification program in place?                               | No   |
| Is it carried out by a third party?                                     | No   |
| Is there a penalty for non-compliance with energy efficiency standards? | No   |
| Are the standards based on external/international standards?            | No   |
| Air conditioners  |  |
| Have minimum energy performance standards been adopted?                 | No   |
| Details of standards  | AC standards measure Energy Efficiency Ratio (EER) and Cooling Capacity (CC) in BTU. Standards vary by type of air conditioning - EER is 2.9 for window AC and ranges between 3 to 3.20 for split ACs. |
| Is there a verification program in place?                               | Yes  |
| Is it carried out by a third party?                                     | Yes  |
| Is there a penalty for non-compliance with energy efficiency standards? | No   |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |   |
|---|---|
| Are the standards based on external/international standards?            | Yes   |
| Lighting equipment  |   |
| Have minimum energy performance standards been adopted?                 | No  |
| Details of standards  | The minimum standards are measured in lumens/watt (lm/W). |
| Is there a verification program in place?                               | Yes   |
| Is it carried out by a third party?                                     | Yes   |
| Is there a penalty for non-compliance with energy efficiency standards? | No  |
| Are the standards based on external/international standards?            | Yes   |
| Industrial electric motors  |   |
| Have minimum energy performance standards been adopted?                 | No  |
| Details of standards  | The standards vary according to rated power (kW) and rpm  |
| Is there a verification program in place?                               | Yes   |
| Is it carried out by a third party?                                     | Yes   |
| Is there a penalty for non-compliance with energy efficiency standards? | No  |
| Are the standards based on external/international standards?            | Yes   |
| Other industrial equipment  |   |
| Have minimum energy performance standards been adopted?                 | No  |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |  |
|---|--|
| Details of standards  | Not applicable   |
| Is there a verification program in place?                               | No   |
| Is it carried out by a third party?                                     | No   |
| Is there a penalty for non-compliance with energy efficiency standards? | No   |
| Are the standards based on external/international standards?            | No   |
| Light duty vehicles   |  |
| Have minimum energy performance standards been adopted?                 | No   |
| Details of standards  | There are no mandatory energy efficiency standards for light duty vehicles |
| Is there a verification program in place?                               | No   |
| Is it carried out by a third party?                                     | No   |
| Is there a penalty for non-compliance with energy efficiency standards? | No   |
| Are the standards based on external/international standards?            | No   |
| Heavy duty vehicles   |  |
| Have minimum energy performance standards been adopted?                 | No   |
| Details of standards  | There are no mandatory energy efficiency standards for heavy duty vehicles |
| Is there a verification program in place?                               | No   |
| Is it carried out by a third party?                                     | No   |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |    |
|---|----|
| Is there a penalty for non-compliance with energy efficiency standards? | No |
| Are the standards based on external/international standards?            | No |

| <b>Energy labeling systems</b>                                    | <b>Score</b> | <b>25</b> |
|---|--------------|-----------|
| Refrigerators   |              |           |
| Have energy efficiency labeling schemes been adopted?             | No           |           |
| Is the labeling scheme mandatory?                                 | No           |           |
| Is the labeling scheme based on external/international standards? | No           |           |
| Air conditioners  |              |           |
| Have energy efficiency labeling schemes been adopted?             | Yes          |           |
| Is the labeling scheme mandatory?                                 | No           |           |
| Is the labeling scheme based on external/international standards? | No           |           |
| Lighting equipment  |              |           |
| Have energy efficiency labeling schemes been adopted?             | Yes          |           |
| Is the labeling scheme mandatory?                                 | No           |           |
| Is the labeling scheme based on external/international standards? | No           |           |
| Industrial electric motors  |              |           |
| Have energy efficiency labeling schemes been adopted?             | Yes          |           |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |    |
|---|----|
| Is the labeling scheme mandatory?                                 | No |
| Is the labeling scheme based on external/international standards? | No |
| Other industrial equipment  |    |
| Have energy efficiency labeling schemes been adopted?             | No |
| Is the labeling scheme mandatory?                                 | No |
| Is the labeling scheme based on external/international standards? | No |
| Light duty vehicles   |    |
| Have energy efficiency labeling schemes been adopted?             | No |
| Is the labeling scheme mandatory?                                 | No |
| Is the labeling scheme based on external/international standards? | No |
| Heavy duty vehicles   |    |
| Have energy efficiency labeling schemes been adopted?             | No |
| Is the labeling scheme mandatory?                                 | No |
| Is the labeling scheme based on external/international standards? | No |

| <b>Building energy codes</b>                                     | <b>Score</b> | <b>66.67</b> |
|--|--------------|--------------|
| Are there energy efficiency codes for new residential buildings? | Yes          |              |
| Are there energy efficiency codes for new commercial buildings?  | Yes          |              |

## Regulatory Indicators for Sustainable Energy (RISE)

|  |  |
|--|--|
| Is the energy efficiency code for new residential buildings its own stand-alone, separate code or part of the overall building code?       | Yes  |
| Is the energy efficiency code for new commercial buildings its own stand-alone, separate code or part of the overall building code?        | Yes  |
| Is there any provision for regular updates to the code for new residential buildings?  | Yes  |
| Is there any provision for regular updates to the code for new commercial buildings?   | Yes  |
| EE building code regulations   | EE.9 SRO 249 (I)-213, Clause 1 Application of Building of Pakistan (Energy Provisions 211) |
| When was the code last updated for residential buildings?  | 0  |
| When was the code last updated for commercial buildings?   | 0  |
| Is there a system to ensure compliance with building energy efficiency codes?  | Yes  |
| Is it carried out by a third party?  | Yes  |
| Are renovated residential buildings required to meet a building energy code?   | Yes  |
| Are renovated commercial buildings required to meet a building energy code?  | Yes  |
| Is the energy efficiency code for renovated residential buildings different from the code for new buildings?                               | No   |
| Is the energy efficiency code for renovated commercial buildings different from the code for new buildings?                                | No   |
| Is the energy efficiency code for renovated residential buildings its own stand-alone, separate code or part of the overall building code? | Yes  |

## Regulatory Indicators for Sustainable Energy (RISE)

|  |     |
|--|-----|
| Is the energy efficiency code for renovated commercial buildings its own stand-alone, separate code or part of the overall building code?  | Yes |
| Is there any provision for regular updates to the code for renovated residential buildings?  | Yes |
| Is there any provision for regular updates to the code for renovated commercial buildings?   | Yes |
| Is there a mandatory standardized rating or labeling system for the energy performance of existing buildings?  | Yes |
| Is the labeling scheme or rating adopted from external standards?  | Yes |
| Are commercial and residential buildings required to disclose property energy usage at the point of sale or when leased?   | No  |
| Are large commercial and residential buildings required to disclose property energy usage annually?  | No  |
| Are there mandates or targets for new building stocks to achieve high quality energy efficiency certifications, such as LEED (Leadership in Energy & Environmental Design) (e.g. percentage of new building stocks that must be LEED certified)? | No  |
| Details  | 0   |
| LEED incentives  | No  |
| Local program details  | 0   |

| <b>Carbon Pricing</b>  | <b>Score</b> | <b>0</b> |
|--|--------------|----------|
| Is there a carbon pricing mechanism in place?  | No           |          |
| For any carbon pricing mechanism (e.g. carbon tax, emission trading system), what is the portion of national GHG emissions covered)? | 0            |          |



## Regulatory Indicators for Sustainable Energy (RISE)

|   |    |
|---|----|
| Is there a monitoring, reporting and verification system for greenhouse gas emissions in place? | No |
|---|----|

### Renewable Energy

| Legal framework for renewable energy   | Score | 100   |
|--|-------|---|
| Does a legal framework for renewable energy development exist?                 |       | Yes   |
| Name of the Law  |       | Alternative Energy Development Board Act 2010 |
| Is private sector ownership of renewable energy generation legally authorized? |       | Yes   |

| Planning for renewable energy expansion                                     | Score | 59  |
|---|-------|---|
| Does an official renewable energy target exist?                             |       | Yes   |
| Overall target  |       | Public Document - Policy for Development of Renewable Energy 2006 |
| Solar target  |       |   |
| Wind target   |       |   |
| Hydro target  |       |   |
| Biomass target  |       |   |
| Geothermal target   |       |   |
| Does a renewable energy action plan or strategy to attain the target exist? |       | No  |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |                            |
|---|----------------------------|
| Name of the action plan   | 0                          |
| Does the plan or strategy define the amount of investment necessary to meet the RE target?                                | No                         |
| The amount of investment identified   | 0                          |
| Is there an institution responsible for tracking progress in renewable energy development?                                | Yes                        |
| Name of the institution   | 0                          |
| Does an electricity generation plan that includes renewable energy development exist?                                     | Yes                        |
| Name of the generation plan   | 0                          |
| Is the expansion plan based on a probabilistic approach?  | Yes                        |
| Does the current transmission planning consider renewable energy scale-up?  | Yes                        |
| Name of the transmission plan   | 0                          |
| Has the country conducted a variable renewable energy integration study?  | No                         |
| Name of the integration study   | 0                          |
| Year of the integration study   | USAID study is in progress |
| Does the country have sufficient resource abundance to warrant a solar resource atlas?                                    | Yes                        |
| Does the government publish or endorse a solar resource atlas or other data on the abundance and quality of the resource? | Yes                        |
| Solar atlas is validated by at least 5 ground-based measurements taken for a period of at least a year;                   | No                         |

## Regulatory Indicators for Sustainable Energy (RISE)

|  |     |
|--|-----|
| Solar atlas has a spatial resolution of 5km or less;   | Yes |
| Solar atlas is based on modeling inputs covering at least a 10 year period;  | Yes |
| Solar atlas is accompanied by an explanation of the methodology and instrumentation  | Yes |
| Has the country carried out strategic planning or produced zoning guidance to inform the commercial development of solar resources?                  | No  |
| Has the solar resource planning or zoning guidance been undertaken as part of a strategic environmental and social assessment or equivalent process? | No  |
| Are the solar resource planning or zoning guidance outputs publically available?   | No  |
| Does the country have sufficient resource abundance to warrant a wind resource atlas?  | Yes |
| Does the government publish or endorse a wind resource atlas or other data on the abundance and quality of the resource?                             | Yes |
| Wind atlas is validated by at least 5 ground-based measurements taken for a period of at least a year;   | No  |
| Wind atlas has a spatial resolution of 5km or less;  | Yes |
| Wind atlas is based on modeling inputs covering at least a 10 year period;   | Yes |
| Wind atlas is accompanied by an explanation of the methodology and instrumentation   | Yes |
| Has the country carried out strategic planning or produced zoning guidance to inform the commercial development of wind resources?                   | No  |
| Has the wind resource planning or zoning guidance been undertaken as part of a strategic environmental and social assessment or equivalent process?  | No  |

## Regulatory Indicators for Sustainable Energy (RISE)

|  |     |
|--|-----|
| Are the wind resource planning or zoning guidance outputs publically available?  | No  |
| Does the country have sufficient resource abundance to warrant a hydro resource atlas?   | Yes |
| Does the country publish or endorse a national hydro resource map or atlas?  | Yes |
| Hydro atlas is validated by ground-based water run-off data and/or site surveys from potential sites;  | No  |
| Hydro atlas is accompanied by an explanation of the methodology and instrumentation  | No  |
| Has the country carried out strategic planning or produced zoning guidance to inform the commercial development of hydro resources?                    | Yes |
| Has the hydro resource planning or zoning guidance been undertaken as part of a strategic environmental and social assessment or equivalent process?   | No  |
| Are the hydro resource planning or zoning guidance outputs publically available?   | No  |
| Does the country have sufficient resource abundance to warrant a biomass resource atlas?   | Yes |
| Does the country publish or endorse a national biomass resource map or atlas?  | Yes |
| Biomass atlas is validated by ground-based survey or officially reported data;   | Yes |
| Biomass atlas is accompanied by an explanation of the methodology and instrumentation.   | Yes |
| Has the biomass resource planning or zoning guidance been undertaken as part of a strategic environmental and social assessment or equivalent process? | No  |

## Regulatory Indicators for Sustainable Energy (RISE)

|  |     |
|--|-----|
| Are the biomass resource planning or zoning guidance outputs publically available?   | No  |
| Does the country have sufficient resource abundance to warrant a geothermal resource atlas?  | Yes |
| Does the country publish or endorse a national geothermal resource map or atlas?   | No  |
| The governmentn has collected and recorded well data at potential geothermal sites?  | No  |
| Does the government publish a national geological map?   | No  |
| The government has supported surface exploration (geological; geochemical; temp; gradient) at potential sites?   | No  |
| The government has supported test drilling at at least one site (slim bore or full well)?  | No  |
| The government has supported the creation of a reservoir model at at least one site?   | No  |
| Has the country carried out strategic geothermal resource planning or produced zoning guidance to inform the commercial development of the resource?                 | No  |
| Has the geothermal resource planning or zoning guidance been undertaken as part of a strategic environmental and social assessment or equivalent process?nt process? | No  |
| Are the geothermal resource planning or zoning guidance outputs publically available?  | No  |

|   |              |            |
|---|--------------|------------|
| <b>Incentives and regulatory support for renewable energy</b> | <b>Score</b> | <b>100</b> |
|---|--------------|------------|

|   |     |
|---|-----|
| Is there at least one scheme to support renewable energy per unit of electricity generated? (e.g., feed-in tariff, competitive bidding/auction, mandates, generation premiums, production tax credits)? | Yes |
|---|-----|

## Regulatory Indicators for Sustainable Energy (RISE)

|   |  |
|---|--|
| Feed-in tariff                              | Yes  |
| Feed-in tariff - Solar                      | Yes  |
| Feed-in tariff - Wind                       | Yes  |
| Feed-in tariff - Hydro                      | Yes  |
| Feed-in tariff - Biomass                    | Yes  |
| Feed-in tariff - Geothermal                 | No   |
| Government body in charge                   | National Electric Power Regulatory Authority (NEPRA)                             |
| Projects guaranteed off-take                | Yes  |
| Solar Feed-in-tariff Price (\$ cents/kWh)   | 14   |
| Solar Feed-in-tariff Max. capacity (single) | The maximum single project size is 100 MW  |
| Solar Feed-in-tariff Max. capacity (total)  | This is not stated in upfront tariff or renewable policy.                        |
| Solar Feed-in-tariff Closing date           | The last date to apply for upfront tariff (mentioned above) is 31 December 2015. |
| Wind Feed-in-tariff Price (\$ cents/kWh)    | 10   |
| Wind Feed-in-tariff Max. capacity (single)  | Maximum project size is 250 MW   |
| Wind Feed-in-tariff Max. capacity (total)   | This is not stated in upfront tariff or renewable policy.                        |

## Regulatory Indicators for Sustainable Energy (RISE)

|  |   |
|--|---|
| Wind Feed-in-tariff Closing date                 | 180 days from the notification date, i.e., from 19 October 2015 |
| Hydro Feed-in-tariff Price (\$ cents/kWh)        | 8   |
| Hydro Feed-in-tariff Max. capacity (single)      | Upto 25 MW  |
| Hydro Feed-in-tariff Max. capacity (total)       | This is not stated in upfront tariff or renewable policy.       |
| Hydro Feed-in-tariff Closing date                | No date announced as yet  |
| Biomass Feed-in-tariff Price (\$ cents/kWh)      | 11  |
| Biomass Feed-in-tariff Max. capacity (single)    | There is no maximum single project size.                        |
| Biomass Feed-in-tariff Max. capacity (total)     | There is no specific cap or targeted capacity under the policy. |
| Biomass Feed-in-tariff Closing date              | No date announced as yet  |
| Geothermal Feed-in-tariff Price (\$ cents/kWh)   |   |
| Geothermal Feed-in-tariff Max. capacity (single) |   |
| Geothermal Feed-in-tariff Max. capacity (total)  |   |
| Geothermal Feed-in-tariff Closing date           |   |
| Competitive bidding                              | Yes   |
| Auction 1 - Year                                 | Not applicable  |
| Auction 1 - Technology                           | Not applicable  |

## Regulatory Indicators for Sustainable Energy (RISE)

|  |                |
|--|----------------|
| Auction 1 - Project-specific tender and size (MW)  | Not applicable |
| Auction 1 - Auction for total and size (MW)  | Not applicable |
| Auction 1 - Standard PPA and Term  | Not applicable |
| Auction 1 - Price ceiling  | No             |
| Auction 1 - Winning bid (\$ cents/kWh)   | Not applicable |
| Auction 1 - Government body in charge  | Not applicable |
| Auction 2 - Year   | Not applicable |
| Auction 2 - Technology   | Not applicable |
| Auction 2 - Project-specific tender and size (MW)  | Not applicable |
| Auction 2 - Auction for total and size (MW)  | Not applicable |
| Auction 2 - Standard PPA and Term  | Not applicable |
| Auction 2 - Price ceiling  | No             |
| Auction 2 - Winning bid (\$ cents/kWh)   | Not applicable |
| Auction 2 - Government body in charge  | Not applicable |
| Winning bid guaranteed off-take  | Yes            |
| Mandates   | No             |
| Generation premium   | No             |
| Production tax credit  | No             |
| Does the government offer other direct fiscal incentives for renewable energy (e.g. capital subsidies, grants or rebates, investment tax credits, tax reductions?) | Yes            |



## Regulatory Indicators for Sustainable Energy (RISE)

|   |     |
|---|-----|
| Investment tax credit   | No  |
| Accelerated depreciation  | No  |
| Reduction in import taxes   | Yes |
| Reduction in sales tax or other taxes   | Yes |
| Does the country provide prioritized access to the grid for RE?   | Yes |
| Do RE projects receive priority in dispatch?  | Yes |
| Are there provisions to compensate seller if offtake infrastructure is not built in time?                                   | Yes |
| Are there mechanisms to compensate RE projects for lost generation due to certain curtailments after project commissioning? | Yes |

| <b>Attributes of financial and regulatory incentives</b>  | <b>Score</b> | <b>100</b> |
|---|--------------|------------|
| Is the market entry mechanism for private RE projects defined? (e.g. 1st come 1st served; tenders)  | Yes          |            |
| Details   |              | 0          |
| Are projects subject to development timelines or milestones?  | Yes          |            |
| Are tariffs indexed (in part or in whole) to an international currency or to inflation?   | Yes          |            |
| If there is a guaranteed tariff, is there a mechanism to adjust the level of the tariff for new entrants (e.g., declination)?   | Yes          |            |
| If there is a guaranteed tariff, is there a mechanism to differentiate tariffs based on the size of the generation plant?   | Yes          |            |
| If there is competitive bidding/auctions, are there provisions to ensure full and timely project completion (e.g., bid-bonds, project milestones, eligibility requirements) |              | N/A        |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |     |
|---|-----|
| If there is a renewable energy mandate, can it be met with tradable certificates (e.g., RECs, ROCs, TECs)?  | N/A |
| Is the price subsidy/benefit implied by a renewable energy incentive program passed through in full or in part to the final electricity consumer? | Yes |

| <b>Network connection and pricing</b>  | <b>Score</b>  | <b>100</b> |
|--|---------------|------------|
| Are there rules defining the allocation of connection costs?   | Yes           |            |
| What is the type of the connection cost allocation policy (i.e. shallow/deep)?   | Super Shallow |            |
| Are there rules that allow electricity customers to purchase power directly from a third party (i.e. an entity other than the designated utility in a service area)? | Yes           |            |
| Do the rules define the size and allocation of costs for transmission and distribution wheeling charges? (e.g., wheeling charges, locational pricing?)               | Yes           |            |
| Do the rules consider customer type/size in determining eligibility for purchasing electricity from a third party?   | Yes           |            |
| connection cost document   | 0             |            |
| Does the country have a grid code that includes measures or standards addressing variable renewable energy?  | Yes           |            |
| Is there more than one balancing area in the country?  | No            |            |
| Are there rules for exchanging power between balancing areas that penalize variable renewable energy (e.g. through imbalance penalties)?                             | N/A           |            |
| Are there provisions in the power exchange rules that allow for plant forecasting?   | N/A           |            |

## Regulatory Indicators for Sustainable Energy (RISE)

| Counterparty risk  | Score | 80  |
|--|-------|-----|
| Does the government offer or allow backing of utility payments (e.g. through a letter of credit, escrow account, payment guarantee, or other)?                   |       | Yes |
| Information disclosure   |       | 29  |
| Are the financial statements of the largest utility publicly available?  |       | 0   |
| Are the financial statements of the largest generation company publicly available?   |       | Yes |
| Are the financial statements of the largest transmission company publicly available?   |       | No  |
| Are the financial statements of the largest distribution company publicly available?   |       | Yes |
| Are the financial statements of the largest retail electricity sales company publicly available?   |       | Yes |
| Are the following metrics published in a primary official document (by the utility, regulator or ministry and/or government)?                                    |       | 0   |
| Is the transmission loss rate published in a primary official document (by the utility, regulator or ministry and/or government)?                                |       | Yes |
| Is the distribution loss rate published in a primary official document (by the utility, regulator or ministry and/or government)?                                |       | Yes |
| Is the bill collection rate published in a primary official document (by the utility, regulator or ministry and/or government)?                                  |       | Yes |
| Is the amount of electricity available for sale to end-users published in a primary official document (by the utility, regulator or ministry and/or government)? |       | Yes |
| Information Auditing   |       | 33  |

## Regulatory Indicators for Sustainable Energy (RISE)

|   |   |
|---|---|
| Financial statements independently audited?   | 0                                       |
| Are the financial statements of the largest generation company audited?                               | Yes                                     |
| Are the financial statements of the largest transmission company audited?                             | Yes                                     |
| Are the financial statements of the largest distribution company audited?                             | Yes                                     |
| Are the financial statements of the largest retail electricity sales company audited?                 | Yes                                     |
| Monitoring Reliability  | 0                                       |
| Is the utility operating an incidence/outage recording system (or SCADA/EMS with such functionality)? | Yes                                     |
| Is the utility measuring the SAIDI and SAIFI or any other measurements for service reliability?       | Yes                                     |
| Are the data reported to the regulatory body?   | Yes                                     |
| Are the data available to the public?   | Yes                                     |
| Name of the selected utility  | Karachi Electric Supply Company Limited |
| data - 17.1. Current ratio (working capital ratio)  | 1                                       |
| data - 17.2 Debt Service Coverage Ratio   | 2                                       |
| data - 17.3 Days payable outstanding  | 233                                     |
| data - 17.4 EBITDA margin   | 0                                       |
| Current ratio (working capital ratio) of selected utility   | 0                                       |
| Debt Service Coverage Ratio of selected utility   | 25                                      |

## Regulatory Indicators for Sustainable Energy (RISE)

|  |    |
|--|----|
| Days payable outstanding of selected utility | 0  |
| EBITDA margin of selected utility            | 20 |

| <b>Carbon pricing and monitoring</b>   | <b>Score</b> | <b>0</b> |
|--|--------------|----------|
| Is there a carbon pricing mechanism in place?  | No           |          |
| For any carbon pricing mechanism (e.g. carbon tax, emission trading system), what is the portion of national GHG emissions covered)? | 0%           |          |
| Is there a monitoring, reporting and verification system for greenhouse gas emissions in place?                                      | No           |          |