Energy Access Projects and their Contribution to the Sustainable Development Goals

Improving assessment of the social and economic benefits of energy access projects
Interlinkages between SDG 7 and other SDGs*

*This visualisation map is to stimulate discussion and does not provide a comprehensive overview of all interlinkages (UNESCAP, 2017)
The **World Bank** has developed a comprehensive framework to measure six levels of access to energy – for both electricity access and access to clean fuels.

- The ultimate goal is to reach Tier 5: full energy access
Multi-Tier Framework for Electricity Access

Capacity

- No electricity
- Min 3 W
- Min 50 W
- Min 200 W
- Min 800 W
- Min 2000 W

Availability (hours/day)

- Min 4
- Min 8
- Min 16
- Min 23

Reliability

- Max disruptions per week
- Max duration of total disruption

- < 2 hours
- < 5% of household income

Legal payment of bill demonstrated

Health and safety

Absence of accidents

Affordability

Cost of transport and distribution

Leagility

Legal payment of bill demonstrated

Energy development

With energy efficient devices
Social and Economic Benefits of SDG 7

Impact of Energy Access on Other SDGs

- Increase in economic activity
- Decrease in expenditure in lighting
- Decrease in indoor air pollution
- Decrease occurrence of diseases
- Decrease in number of accidents
- Increase in number of children finishing school
- Increase in education level
- Increase in school enrolment
- Increase in time for activities other than household chores
### Degree of Social and Economic Benefits Of Access to Electricity Projects

(0) No benefit  
(1) Small benefit, compared with tier 0  
(2) Moderate benefit, compared with tier 0  
(3) Large and significant benefit, compared with tier 0

<table>
<thead>
<tr>
<th>SDG</th>
<th>Metric</th>
<th>Indicator</th>
<th>Indication of degree of benefits, compared to Tier 0</th>
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</thead>
</table>
| No Poverty (SDG 1) | Increase in economic activity | • Household income  
• Employment, male and female  
• No. of new firms/year | 0  
0  
1  
2  
3 |
| Good health & well-being (SDG 3) | Decrease in expenditure on lighting | • Expenditure on lighting | 2  
3  
3  
3  
3 |
| | Decrease in indoor air pollution due to access to clean lighting | • Carbon monoxide concentration  
• PM$_{2.5}$ concentration | 1  
2  
3  
3  
3 |
| | Decrease in occurrence of diseases related to indoor air pollution due to access to clean lighting | • Occurrence of respiratory disease symptoms  
• Occurrence of eye infections  
• Averted DALYs | 1  
2  
3  
3  
3 |
| | Decrease in number of accidents with lighting | • Occurrence of accidents | 1  
2  
2  
3  
3 |
| Quality education (SDG 4) | Additional time spent on homework | • Hours/day | 1  
2  
2  
3  
3 |
| | Increase in number of children finishing school | • No. of children finishing school/year | 1  
2  
2  
3  
3 |
| | Increase in education level | • Years at school | 1  
2  
2  
3  
3 |
| | Increase in school enrolment | • No. of children enrolling in school/year | 1  
2  
2  
3  
3 |
| Gender Equality (SDG 5) | Increase in time for activities other than household chores | • Additional hours/day available for other activities | 0  
0  
1  
2  
3 |
• Chart shows potential impact but actual level of impact can be different pre project, e.g. depending on efforts in encouragement of productive use at Tier 3 level
• Monitoring & evaluation is therefore crucial, in order to assess the actual level of impact on other SDGs and to learn from effectiveness of efforts in triggering impact on other SDGs
### Social and Economic Benefits Of Access to Electricity Projects

<table>
<thead>
<tr>
<th>Approaches</th>
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<tbody>
<tr>
<td><strong>Simple</strong></td>
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<td>- <em>Basic scoring:</em> Apply basic scoring—four levels—based on observed social and economic benefits in the academic and grey literature for different levels of access to electricity and clean-cooking solutions.</td>
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<td>- <em>Rule of thumb:</em> Combining observed quantified impact factors (resulting from projects executed in divergent circumstances) reported in academic and grey literature with project data.</td>
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<td>- <em>Surveys:</em> Gathering data through surveys that can range from basic surveys, with a limited number of questions, to detailed surveys for scoring the baseline situation and project outcomes.</td>
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<td>- <em>Modelling:</em> Apply models to, for example, assess economic or health benefits.</td>
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<tr>
<td>- <em>Measurements:</em> Apply measurements, for example, to determine level of indoor air pollution.</td>
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- Monitoring & Evaluation can be undertaken with varying levels of efforts, leading to varying levels of detail/accuracy.
- Choosing a certain M&E method may depend on resources available, in UNDPs projects, this may tend to focus on “rule of thumb” and surveys.
- Additional indicators in project design needed to operationalize broader SDG impact assessment.
Summary

• This UNDP framework analyses the social and economic impact of energy access projects along the five tiers of energy access previously determined by the World Bank, to highlight the importance of ultimately aiming for Tier 5 energy access for all.

• Actual levels of impact can differ per project and need Monitoring & Evaluation on project level.

• UNDP will implement monitoring & evaluation of impact of UNDP electricity access projects, e.g. in Myanmar mini-grid project.