Deep Energy Retrofit is a true catalyst for addressing the SDGs
Kirsten Mariager - My Background

Academic and Business Background

- BSc Civil Engineering
- Head of Sustainability Management

DEM SDG Clients and Partners

- SDG Materiality and Cases
  - HARVARD Office for Sustainability
- SDG Management Strategy
  - SHF
  - AARHUS UNIVERSITY
- SDG Alignment for International Monitoring & Evaluation
  - ACP-EU Energy Facility Monitoring
Connecting New Yorkers to a global conversation through the shared language of the SDGs

NYC is First City in the World to Report to UN on Local Steps Toward Global Goals

Source: NYC Mayors Office of International Affairs
The voluntary review describes the city’s progress toward the five SDGs the UN prioritized this year:

- **SDG 6:** Ensure availability and sustainable management of water and sanitation for all
- **SDG 7:** Ensure access to affordable, reliable, sustainable, and modern energy for all
- **SDG 11:** Make cities and human settlements inclusive, safe, resilient and sustainable
- **SDG 12:** Ensure sustainable consumption and production patterns
- **SDG 15:** Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
For each SDG, the NYC Mayor’s Office for Operations has included top-line OneNYC indicators

Each goal provides a sampling of specific indicators, a description, and the source to demonstrate how the City monitors both operational performance and progress toward its goals.

### Example:

**Indicator name:** Annual energy retrofit/conservation projects completed

**Description:** The annual number of energy retrofit, solar thermal and co-generation projects installed and operational within or on City structures in a given fiscal year.

**Source:** DCAS Energy Management.

### SDG 7:
Ensure access to affordable, reliable, sustainable, and modern energy for all

**Top-line OneNYC indicators:**
- Greenhouse gas emissions reductions relative to 2005
- Vision 4 indicators, which are related to resiliency
DEM has a strategic focus on Sustainability

**OUR VISION**

Based on a passion for energy, we strive to build a future where energy is applied efficiently and sustainably in an affordable way.

**OUR VALUES**

Our values are most directly linked to four of the 17 UN Sustainable Development Goals, namely 7 – Clean Energy, 11 – Sustainable Cities, 13 – Climate Action and 17 – Partnerships:

Our motivation to provide **sustainable energy** services when and where they are needed, increasing energy efficiency and the share of renewable energy in the global energy mix.

Our commitment to strengthening peoples living conditions and contributing to the creation of **sustainable cities** and communities.

Our ability to be creative and adaptable, combating **climate** change and meeting customer needs with innovative solutions.

Our willingness and desire to foster cooperation and mutual trust within all of our **partnerships**, maintaining a high standard of social responsibility and business ethics in a transparent manner.
The SDGs have provided the foundation for business model innovation and new services on the market

• We have chosen to work actively with the 17 Goals in the revision of our strategy plan and have considered what incorporating these goals mean for our business.

• Today, the SDGs are used in our business to:
  ✓ stimulate product and service innovation
  ✓ identify and develop new market segments
  ✓ strengthen foresight management / compliance
  ✓ increase sales
  ✓ strengthen our brand
  ✓ improve operational efficiency
  ✓ establish a common framework for our daily work
DEM's SDG service model on the market

Our model offers a way to implement, measure, and report on progress being made towards sustainable development as an integrated part of your business strategy.

- SDG Business Strategy
- SDG Materiality Screening/Assessment
- SDG SMART Indicator (KPI) Identification
- SDG Impact Tracking Cases/Reports
- SDG Measurement System
- SDG Training & Education Workshops
CASE: Deep Energy Retrofit project in the City of Aarhus, Denmark

“Our vision is a CO₂-neutral city by 2030, as a step along the way towards the fossil-free society”
CASE: Deep Energy Retrofit project City of Aarhus, Denmark

The City of Aarhus invests USD 69 mio. in Deep Energy Retrofit to achieve 30% CO₂ reduction in 15 mio. ft² of buildings (650 buildings).
DEM's role as the Aa+ Owners Representative

1. Process planning
2. Project Management
3. Tendering
4. Implementation
5. Solar PV
6. Commissioning
7. Capacity development
8. Communications
9. Energy management
Measuring sustainable impact of:
The Design and installation of Solar PV plants

- 22 buildings/PV plants (schools)
- Total installed capacity 1406 kWp
- Mono crystaline PV cells
DEMs Online SDG Measurement System - track and report on progress towards the SDGs following UN standards.
Selection of relevant project SDG indicators for SDG 7

### Project Indicators

**Project. Solcelleprojekt 2014+2015 - Hovedsag**

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These are the DEM-ESB indicators that have been selected for this type of project.

#### Affordable and Clean Energy

<table>
<thead>
<tr>
<th>Goal</th>
<th>Indicator number</th>
<th>Indicator description</th>
<th>Examples and clarification</th>
<th>Check if relevant</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target: 7.2 Increase share of renewable energy globally</strong></td>
<td>7.2a</td>
<td>Increase in kWh renewable energy production, thermal and electricity (Env.)</td>
<td>Projects contain only renewable energy production and not improved energy efficiency, e.g. solar PV or heat pumps. The indicators 7.2a and 7.3a cannot be selected at the same time. If the project contains both energy efficiency and renewable energy indicator 7.3.a must be selected and renewable energy production is then considered as a saving.</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>7.2b</td>
<td>Number of renewable energy plants included in the project (Env.)</td>
<td>Projects contain renewable energy production, e.g. solar PV or heat pumps.</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Target: 7.3 Double the rate of improvement in energy efficiency</strong></td>
<td>7.3a</td>
<td>Number of kWh saved through improved energy efficiency, thermal and electricity (Env.)</td>
<td>Projects typically contain city master plans, renovation or new build. The indicators 7.2a and 7.3a cannot be selected at the same time. If the project contains both energy efficiency and renewable energy indicator 7.3.a must be selected and renewable energy production is then considered as a saving.</td>
<td>✓</td>
</tr>
</tbody>
</table>
## Selection of relevant project SDG indicators for SDG 13

### Climate Action

<table>
<thead>
<tr>
<th>Goal</th>
<th>Indicator number</th>
<th>Indicator description</th>
<th>Examples and clarification</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.1.a</td>
<td>13.1.a</td>
<td>CO₂ savings as a result of renewable energy production (Env.)</td>
<td>Projects contain only renewable energy, and not improved energy efficiency, e.g., solar PV or heat pump projects. Renewable energy projects with separate project number. The indicators 13.1.a and 13.1.b cannot be selected at the same time.</td>
</tr>
<tr>
<td>13.1.b</td>
<td>13.1.b</td>
<td>CO₂ savings as a result of improved Energy Efficiency (Env) in energy renovation- or new build projects</td>
<td>Projects contain renovation or new build. Renewable energy production is considered as an energy saving. Project ex: Sydenergi and Regional Hospital Horsens. The indicators 13.1.a and 13.1.b cannot be selected at the same time.</td>
</tr>
</tbody>
</table>
Project values inserted for the relevant project SDG indicators

Indicator values which has reached project completion

Enter the project's total contribution (best guess) and optional comment to the entered number in the period.
Some of the figures may not be relevant and thus no number or comment should be entered.

<table>
<thead>
<tr>
<th>Description</th>
<th>Guidelines</th>
<th>Number</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of implementation projects</td>
<td>In Denmark number of projects = 1. For international projects e.g. M&amp;E can evaluate multiple projects.</td>
<td>1</td>
<td>Enter comment</td>
</tr>
<tr>
<td>Number of kWh renewable energy, electricity or heat, produced during the plant's lifetime</td>
<td>Calculated over lifetime (e.g. DK Solar PV = 25 yrs, DK heat pump = 20 yrs). For Danish projects the value is imported from the calculation module. For international projects state the used lifetime in the comment box.</td>
<td>33315825</td>
<td>Enter comment</td>
</tr>
</tbody>
</table>
Project values inserted for the relevant project SDG indicators and CO₂ savings are calculated

### 7.2.b Number of renewable energy plants included in the project (Env.)

<table>
<thead>
<tr>
<th>Description</th>
<th>Guidelines</th>
<th>Number</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of solar PV plants</td>
<td></td>
<td>22</td>
<td>Enter comment</td>
</tr>
<tr>
<td>Number of solar thermal plants</td>
<td></td>
<td>0</td>
<td>Enter comment</td>
</tr>
<tr>
<td>Number of Wind plants</td>
<td>There can be several wind mills and one wind plant.</td>
<td>0</td>
<td>Enter comment</td>
</tr>
<tr>
<td>Number of Biomass plants</td>
<td></td>
<td>Enter number</td>
<td>Enter comment</td>
</tr>
<tr>
<td>Number of Hydro plants</td>
<td></td>
<td>Enter number</td>
<td>Enter comment</td>
</tr>
<tr>
<td>Number of other plants</td>
<td>Please include description of plant type in comment box.</td>
<td>Enter number</td>
<td>Enter comment</td>
</tr>
</tbody>
</table>

### 13.1.a CO₂ savings as a result of renewable energy production (Env.)

<table>
<thead>
<tr>
<th>Description</th>
<th>Guidelines</th>
<th>Number</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of ton CO₂ saved</td>
<td>Calculated over lifetime (eg. DK Solar PV = 25 yrs, heat pump = 20 yrs.)</td>
<td>6204</td>
<td>Enter comment</td>
</tr>
<tr>
<td></td>
<td>For Danish projects the value is imported from the calculation module.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>For international projects state the used CO₂ emission and the source in the comment box</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Summary of project data

Project data

Project
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E-13 Projektledelse - ATR 1.0 Aa+ Energireno. Aarhus Kommune
Project Total Hours 254
Period 2015/2016
Period Hours 254

Actual installed effect of the plant [kWp] 1406
Electricity production during lifetime [kWh] 35315625

Calculated results - Annual Employee Contribution
CO2 Reduction [tCO2] 6.004
Production 35,315,625

Calculated results - Project Lifetime Total
CO2 Reduction [tCO2/lifetime] 6.004
Production [kWh/lifetime] 35,315,625

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Results are exported to MS word and can be copied into reports and presentations.

The result is a graphic representation of project contribution to selected SDGs, Targets and SMART Indicators.

This is a powerful tool for reaching a wide range of stakeholders with specific key figures.
Visual communication – Project SDG cases
Progress towards sustainable development is measured

**ACCUMULATED PROJECT SDG AND TARGET IMPACT**

For each of the SDGs and SDG Targets that we work with directly, we measure progress toward sustainable development, and also provide performance metrics that complement official data. Here is a visual representation of employee working hours, as they relate to our primary Sustainable Development Goals and SDG Targets.

**DEM-ESB DISTRIBUTION OF WORKING HOURS IN SDGs 2016-2017**

- SDG 17: Partnership for the goals (9.0%)
- SDG 13: Climate action (8.7%)
- SDG 11: Sustainable cities and communities (8.7%)
- SDG 7: Affordable and clean energy (73.6%)

**DEM-ESB DISTRIBUTION OF WORKING HOURS IN SDG TARGETS 2016-2017**

- SDG 7.1: Ensure universal access to energy services
- SDG 7.2: R&I: Increase share of renewable energy globally
- SDG 7.3 EE: Double the rate of improvement in energy efficiency
- SDG 11.1: Ensure access to housing and basic services
- SDG 11.3: Ensure inclusive and sustainable urbanization
- SDG 11.6: Reduce adverse impact of cities through waste management

**60% OF OUR WORK WITH SUSTAINABLE CITIES CONTRIBUTED TO ENSURING ACCESS TO HOUSING AND BASIC SERVICES**

**70% OF EMPLOYEE WORKING HOURS CONTRIBUTE TO SDG 7 – AFFORDABLE AND CLEAN ENERGY**

- SDG 13.1: Strengthen resilience and adaptive capacity to climate-related hazards
- SDG 13.2: Integrate climate change measures into national policies
- SDG 13.3: Improve education, awareness-raising and human and institutional capacity

**SUSTAINABLE DEVELOPMENT GOALS**

- SDG 17: Partnerships for the Goals
- SDG 13: Climate action
- SDG 11: Sustainable cities and communities
- SDG 7: Affordable and clean energy

**SUSTAINABLE DEVELOPMENT GOALS**

- SDG 17: Partnerships for the Goals
- SDG 13: Climate action
- SDG 11: Sustainable cities and communities
- SDG 7: Affordable and clean energy
Annual sustainability impact reports

ACCUMULATED PROJECT IMPACT

For each of the SDGs and SDG Targets that we work with directly, SMART indicators act as a report card to measure progress toward sustainable development, and also provide performance metrics that complement official data. These figures represent the collective employee contribution to specific SMART indicators across all projects calculated for the 2016-2017 reporting year.

- **Access to reliable energy:** 34.8 million people
- **Contribution to renewable energy in the global energy mix:** 179 GWh
- **Contribution to energy efficiency:** 185 GWh
- **Renewable energy and energy efficiency:** 32 million tCO₂ saved
- **EUR amount mobilized for sustainable development:** 5.2 million EUR
Thank you!

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