Update on the 2013 Project Tender

Board TKI Switch2SmartGrids
The Dutch innovation policy ambitions

- Strengthen position in the top 5 of global knowledge economies by 2020 (GCI/WEF)
- Increase Dutch R&D efforts to 2.5% of GDP by 2020
- Establish Top consortia for Knowledge & Innovation (TKIs) by 2013
  - At least 40% of consortia financed by private sector
Top sector policy of the Dutch government
- Concentration of R&D funding in nine sectors, energy being one of these nine
- Demand and supply of knowledge in these sectors should be better connected, i.e. stronger role for private sector
- Improving cooperation between companies, universities and government

Top Team Energy determined seven themes, including Smart Grids

Innovation Contract Smart Grids 2012 has been executed
- 17 projects have been awarded in 2012
- Total budget of €25,9 million with a 56% share from companies

Innovation Contract has been defined for period 2013-2015
- Budget from government is €5,7 million in 2013
Agenda of TKI – organizing SG community

- Being a top consortium of SG throughout the ‘innovation chain’, i.e. from RD&D up to market application and implementation
- Actively stimulate cooperation between companies, academia and governments (match making), and create critical mass in selected topics
- Create ‘eco system’ at both local and international level
Smart Grids: status in NL

- Development of knowledge and products: PowerMatcher, Power Router, Smart Cable Guard, SASensor, etc.
- First demonstration projects: Smart Storage, PowerMatching City, GROWders, etc.
- Large-scale pilots are starting: Smart City A’dam, Easy Street, Couperus, Smart Energy Collective, etc.
Innovation Contract Smart Grids: 4 closely linked program lines

1. Products & Services
2. Virtual Infrastructure
3. Physical Infrastructure

Basic graph: TNO, SG 4 layer model
Four interlinked program lines, all covering research up to market application

- **Discovery (Universities & Research Institutions)**
  - 1) Physical Infrastructure
  - 2) Virtual Infrastructure
  - 3) Services (B2C and B2B)

- **Demonstration (Consortia)**
  - Regional initiatives like Energy Valley, SETS, Smart Energy Regions, Stichting kiEMT, AIM, RCI, USI
  - Pilot projects like PowerMatching City
  - Other projects and initiatives like European Network for Cyber Security

- **Deployment (Companies)**
  - 1) Physical Infrastructure
  - 2) Virtual Infrastructure
  - 3) Services (B2C and B2B)
Projects started in 2012

Division of budgets for the 2012 projects among the four program lines

Average

1. SG-BEMS
2. i-Balance
3. MeppelEnergie
4. VICS
5. PV SIMS
6. CERISE-SG
7. SEC Smart Energy Markets
8. SEC USEF
9. EWEB 2.0
10. CSGnP
11. iDASA
12. KOSTREDIN
13. Warmteweb B3-Hoek
14. SF & SG
15. EVPV-Grid
16. Cyber Security for SG
17. Green Grid

100% = 25,078,481 euro

- Products & services
- Virtual infrastructure
- Physical infrastructure
- Institutional & social innovation
Relation between projects and project partners
Goal of innovation contract. New, affordable products and services to balance demand and supply. Prevent grid congestion. Support stabilising the energy supply as well as saving energy. SG is 'enabler' of other developments in the energy sector.

Longer term goal. Increase of R&D on specific subjects. Stimulate innovations and deployment in participating companies. Bundling and strengthening cooperation between highly qualified experts.

2013 goal. Develop roadmaps for all program lines to determine R&D focus for coming years, and to be timely prepared for an energy supply based on smart grids. Improve cooperation with other TKIs, e.g. EnerGO & Solar Energy.
2013 priorities of the SG Innovation Contract

1. Products and Services
   • Energy management, including energy storage as a product or service to consumers, companies, and grid operators
   • Goals are to facilitate distributed generation as well as to provide insight to stakeholders and support energy saving

2. Virtual infrastructure
   • National and international standardization of protocols and interfaces, e.g. open energy framework, ICT architectures, interoperability, security by design
   • Stimulate smart grid projects to be linked to projects in the ICT Roadmap (cross-sector TKI)

3. Physical infrastructure
   • Asset management of smart grid infrastructure
   • Integration of RES
   • DC grids and DC interfaces
   • Close cooperation with Dutch branch organization of grid operators

4. Institutional and social innovation
   • Optimal use of ‘flexibility’ of the energy system, taking the different interests of the stakeholders into account
   • New and changing roles in the energy sector
   • Development of services and business models
Addendum to the Innovation Contract Smart Grids: results of discussion in sounding boards

SOLL: Elementen uit de scenario’s die richting aangeven

SOLL: Uitdagingen en belemmeringen per programmalijn

Versterkende onderzoeksonderwerpen

IST situatie: lopend onderzoek gericht op genoemde uitdagingen

Stap 1

Stap 2

Stap 3

Stap 4
Addendum to Innovation Contract Smart Grids: Step 1, directions based on 20-20-20 objectives EU

1. The availability of more options will give room for decentral production.
2. Increasing part of renewable energy demands for more flexibility in the system.
3. CHP’s and the expected market penetration of electric vehicles will cause an increase of electricity in the energy system.
4. More integration of energy systems will demand cooperation and interoperability
Addendum to Innovation Contract Smart Grids: Step 2, Challenges

1. Disturbance of existing chain and ecosystem
2. New solutions, new markets and new players
3. Scalability
4. ICT
Addendum to Innovation Contract Smart Grids: Step 4, focus area’s 2013, products and services

- New market models and price mechanisms based on information smart meters.
- Energy management and optimisation. Emphasis on intelligent enterprises and premises.
- Integration of electric vehicles in the Smart Grid.
Addendum to Innovation Contract Smart Grids: Step 4, focus area’s 2013, virtual infrastructure

- Frameworks and standards.
- Control and management systems.
- Resilience, availability.
- Security by design.
- Cross over with ICT roadmap.
Addendum to Innovation Contract Smart Grids: Step 4, focus area’s 2013, physical infrastructure

- Energy conversion and integration technologies for optimal use of energy resources on different voltage levels.
- DC grids and DC interfaces.
- Asset management of the Smart Grid infrastructure; new measuring technologies and sensors.
Addendum to Innovation Contract Smart Grids:
Step 4, focus area’s 2013, institutional and social innovation

- Optimal use of flexibility with an open eye on existing and new stakeholders.
- Changing role of DSO’s and the rise of new roles.
- Development of new services and business models for specific end-user (groups).
- The end-user as new stakeholder.
Organisation Tender 2013: general

• Comparable to tenders 2012:
  • Consortium: minimal 1 company and 1 knowledge institution.
  • Subsidy per project min. 125k €, max. 1 million €.
  • Total subsidy tender lower: ca. 5.3 million € (in 2012 10.35 million €).
  • One tender in 2013 (two in 2012).

• Percentages of subsidy (max. subsidy as % van project costs) the same as in 2012:
  • Fundamental research 80%
  • Industrial research 50%
  • Experimental development 25%
  • Demonstration 40% (of extra costs up to reference costs)
## Organisation tender 2013: evaluation criteria

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Weighing factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Societal impact</td>
<td>25% 25%</td>
</tr>
<tr>
<td>Economic impact</td>
<td>25% 25%</td>
</tr>
<tr>
<td>Project organisation</td>
<td>20% 20%</td>
</tr>
<tr>
<td>Innovation</td>
<td>10% 20%</td>
</tr>
<tr>
<td>Cost efficiency</td>
<td>20% 10%</td>
</tr>
</tbody>
</table>

Rejection if on one or more of the criteria the score is < 5 of 10 points except on cost efficiency.
Organisation Tender 2013: planning

- Publication of TKI S2SG tender together with publication of tenders of other TKI’s end of June (http://www.agentschapnl.nl/onderwerp/topsector-energie).


- Closure: 12 September 2013, 17h.

- Results: mid December 2013.