ERLN Meeting

Renewable Energy and Energy Efficiency

Wolfgang Böhmer

Eskom: Grid Access Unit

Date: 4&5 Aug 2015

Overview

The IRP

Summary of RE projects already connected (large and key projects)

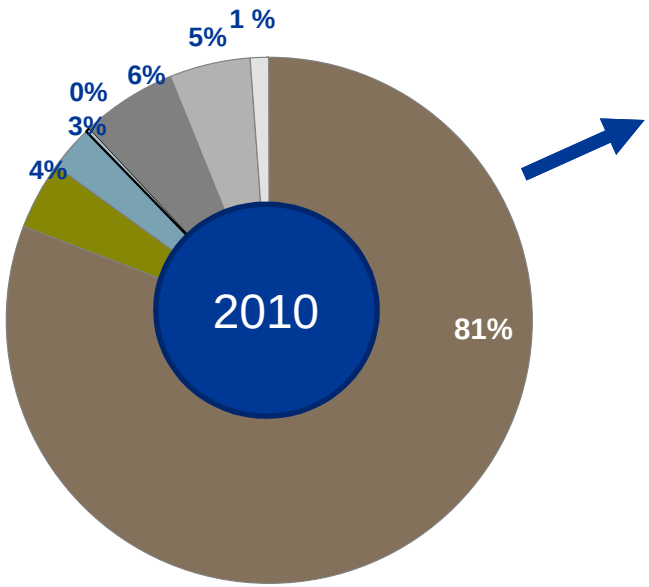
Small and Micro-Generation within Eskom: Background

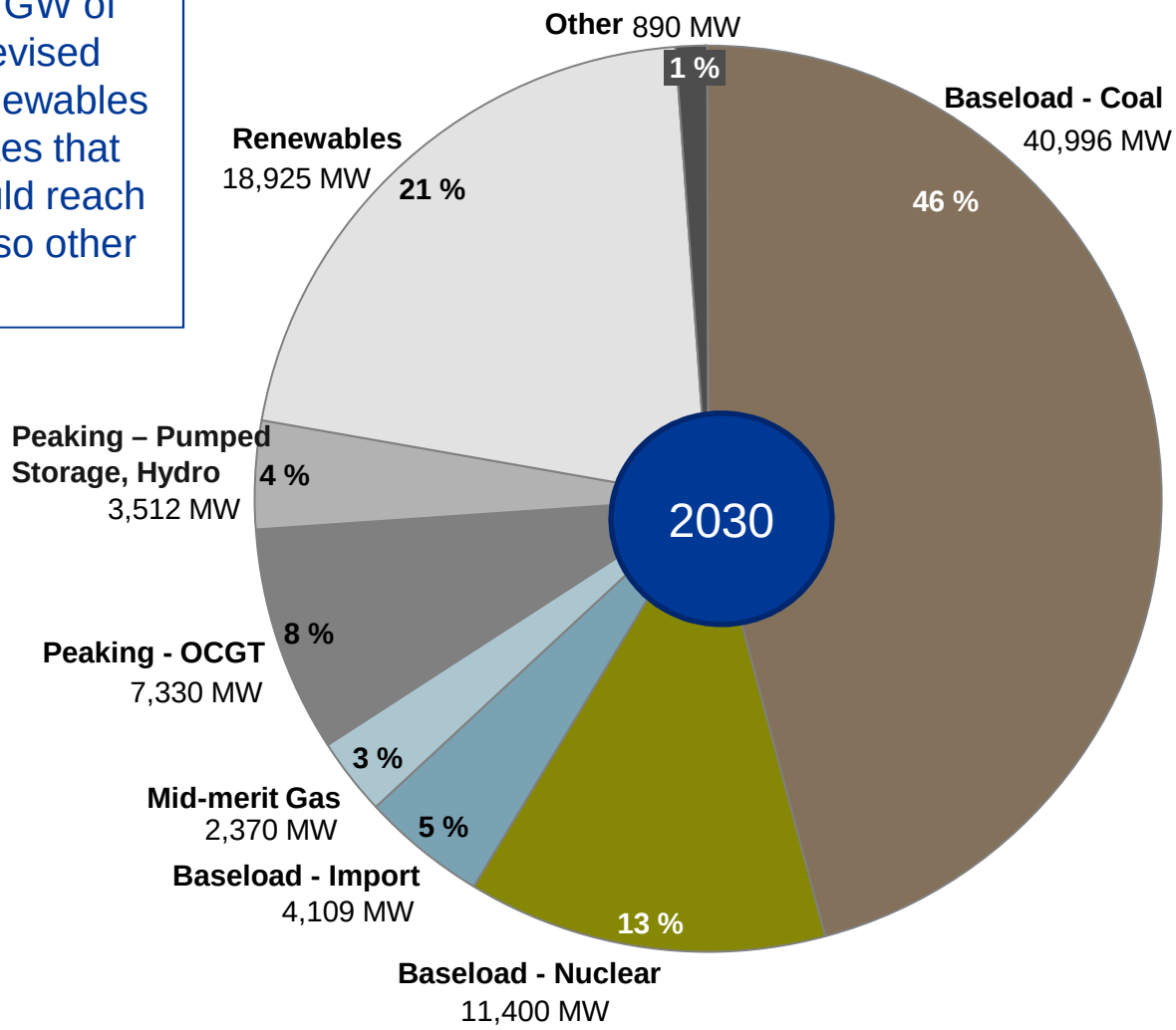
Small and Micro-Generation:

- What has Eskom done,
- Summary of technical solutions,
- Overview of connection options and processes,
- Overview of tariff options

Policy-adjusted IRP leads to new 2030 capacity mix

- The forecasted peak demand will grow from 38.9 to 62 GW by 2030. Total 81.3 GW of Gx capacity is required by 2030 (revised IRP, 2013), growth mostly from renewables
- The IRP 2010–30 (update) estimates that residential and commercial PV could reach 22.5GW by 2030 (and there are also other SMG technologies).





Source: IRP2010 published in 2010 < www.doe-irp.co.za >

Summary: IPP grid access to date (RE programme)

Description		BW 1		BW 2		TOTALS	
		Projects	MW	Projects	MW	Projects	MW
Grid Connection	Projects connected to the grid	28	1417.63	14	706.22	42	2123.85
	Projects currently delayed GCD			3	142.08	3	142.08
Commercial Operation (CO)	Projects achieved COD	26	1360.32	11	499.62	37	1859.94
	Projects achieved COD late	17	765.08	4	148.70	24	913.78
	Projects did not achieve COD as yet (SCOD in past)	2	55	2	210.5	4	265.5
	Projects achieved COD on time	9	540.24	7	350.92	16	891.16
Early Operating (EO)	Projects in EO Period	0		0		0	0

Total MW in CO	**1859.94 MW**

As at 28.07.2015

Small and Micro-Generation - background

- Eskom has well defined standards, processes and systems to deal with the application, connection and post connection management of generation to be connected to the grid that is greater than 1MW (Large and Key IPP and generation projects).There are also well defined national grid codes for these types of generators.

- There are no national standards, regulations and grid codes for connection of Small and Micro-Generation (SMG) that is less than 1MW.

- There are four categories of SMG viz.:

  1. Customer take a MV supply to connect generation (typically greater than 350kW)
  2. Customer use Eskom dedicated MV/LV transformer (greater than 13.8KW but less than 350kW
  3. Customer use Eskom shared LV networks (less than 13.8KW typically rooftop PV as an example)
  4. Customers with prepaid meters (less than 13.8kW, e.g. typically rooftop PV.)

Eskom's Response

Critical objectives to be achieved for service offerings to SMG network customers:

- Provide consistent communication and ease of information availability and accessibility.
- Non-discriminatory access to the Eskom grid.
- Optimal cost of the service.

Eskom established the SMG Steering Committee to drive the framework

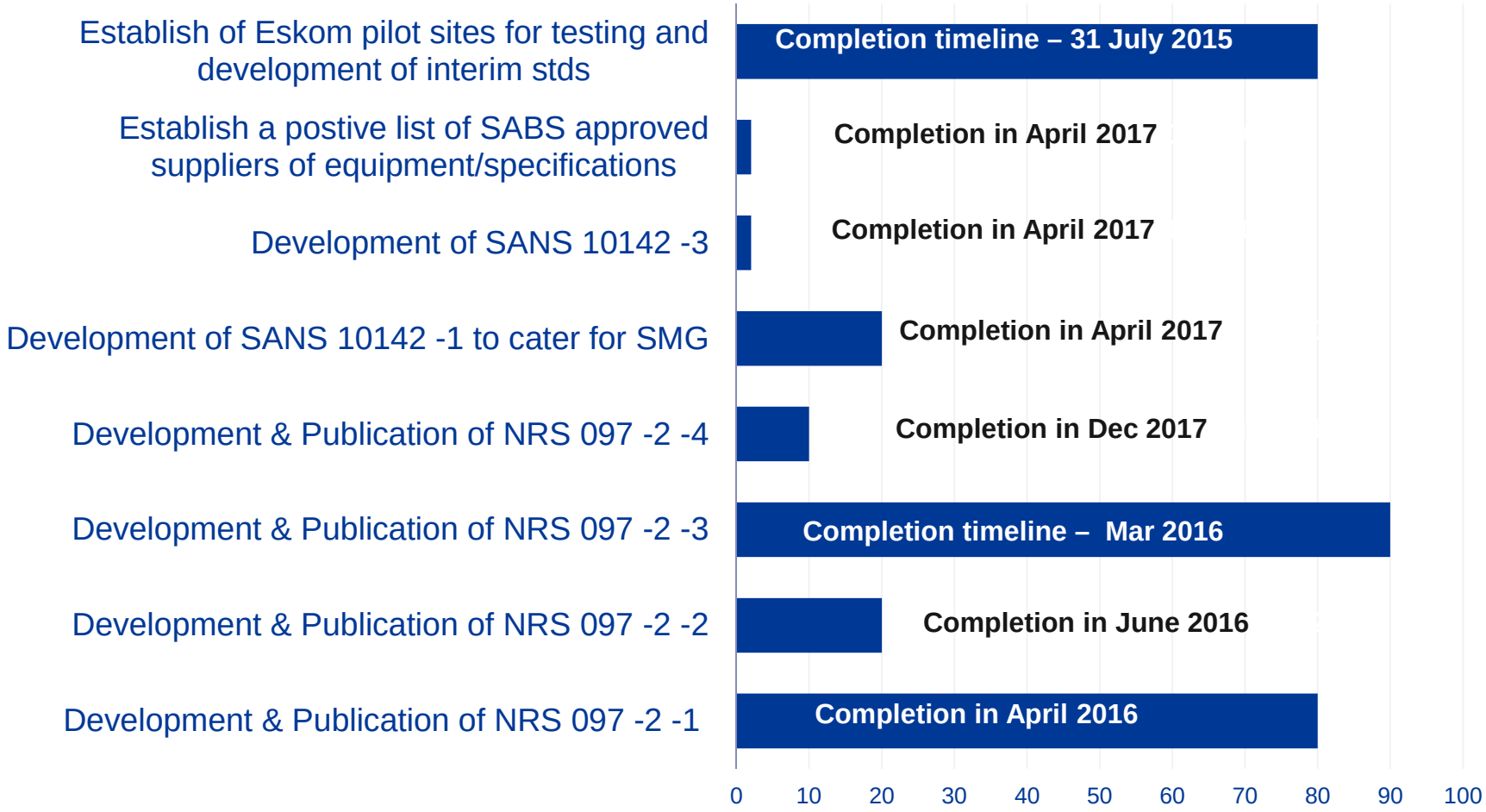
Eskom's response . . continued

Small and Micro-Generation (<1 MW) Framework

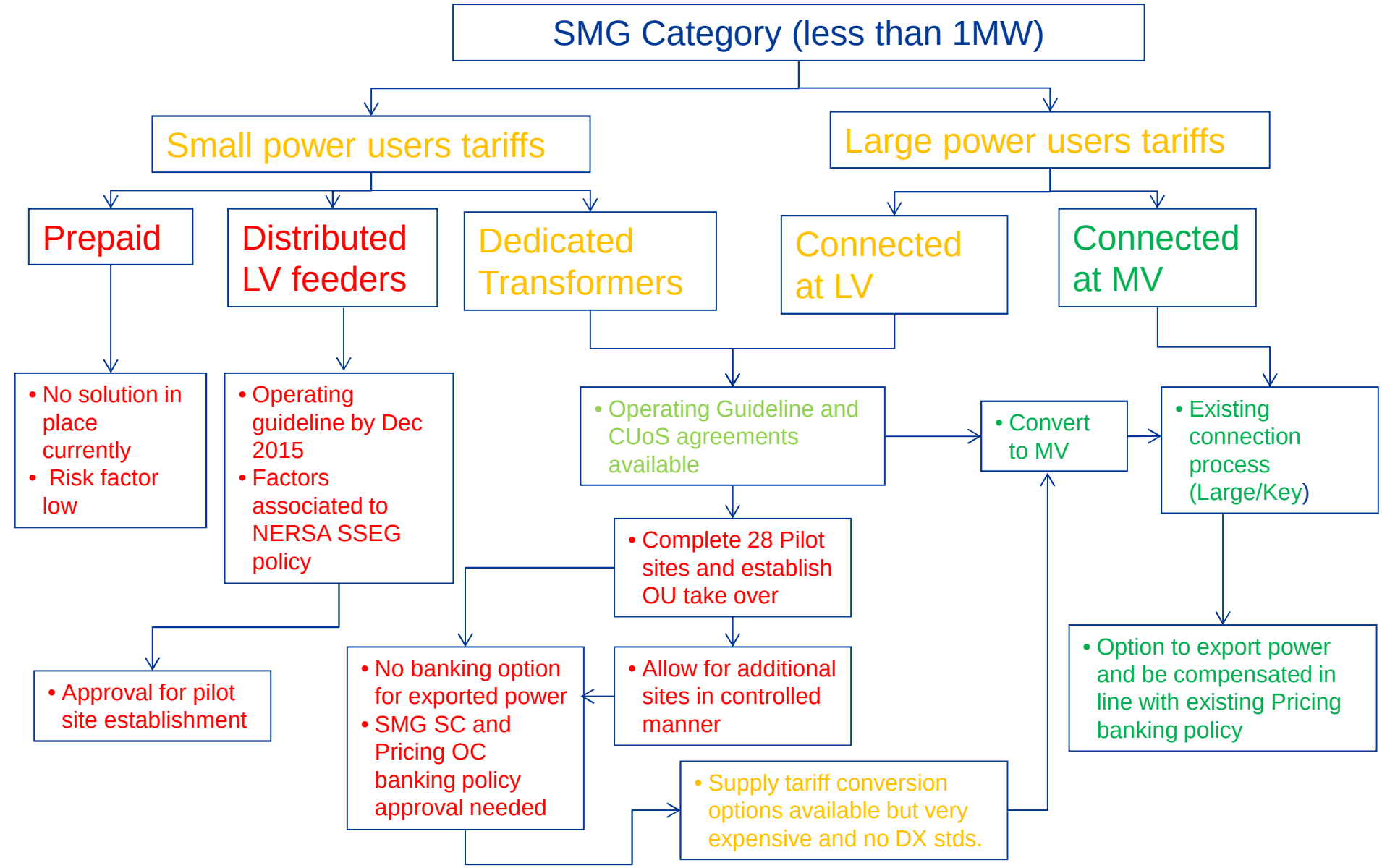
Area To Be Addressed	Measures	Outcome
Pricing (costing) and Contracts	• Use GAU to manage service relationship, stakeholder management and interfaces related to SMG's in the interim until the framework is finalised. • Define and implement technical standards for connection and operation. • Develop an optimised SMG connection process • Define operations processes for SMG • Resolve pricing policy and cost recovery issues • Build SMG intelligence framework and capability • Establish capability to integrate SMG's across the business	**Establish clear accountability** **Improve Eskom's image and reputation in dealing with SMG's** **Achieve non-discriminatory grid access for SMG's** **Effective organization with process excellence in SMG connection and operations**
Technical (Eskom Group Techn and Dx)		
Process excellence: Application through to Operations		
Billing and Cost recovery (Payments)		
Operations		
IDM & Renewables Integration		
Communication		

Technical Requirements, and Progress Report

Technical % Completion of Key Components



Process flow – Connection Options



Tariffs for SMGs

- Eskom actively participates in the SA national structures to deal with SMG (or Small Scale Embedded Generation as commonly known) – This groups include SANS working groups, NERSA, SALGA, AMEU, DOE, DPE.

- NERSA is to publish national policy and regulations on small scale embedded generation (expected in August 2015). Eskom will then need to apply policy and make a proposal submission to NERSA for decision.

- The industry needs a tariff that would allow grid energy banking, also for less than 100kW, as the installations are not economically viable.

  - The subsidized nature of Eskom tariffs also make cost recovery of fixed network costs impossible, leading to revenue shortfalls.

  - The tariff to be used will have to be done in a way that can be easily understood, implemented and is consistent.

Tariffs for SMGs . . continued

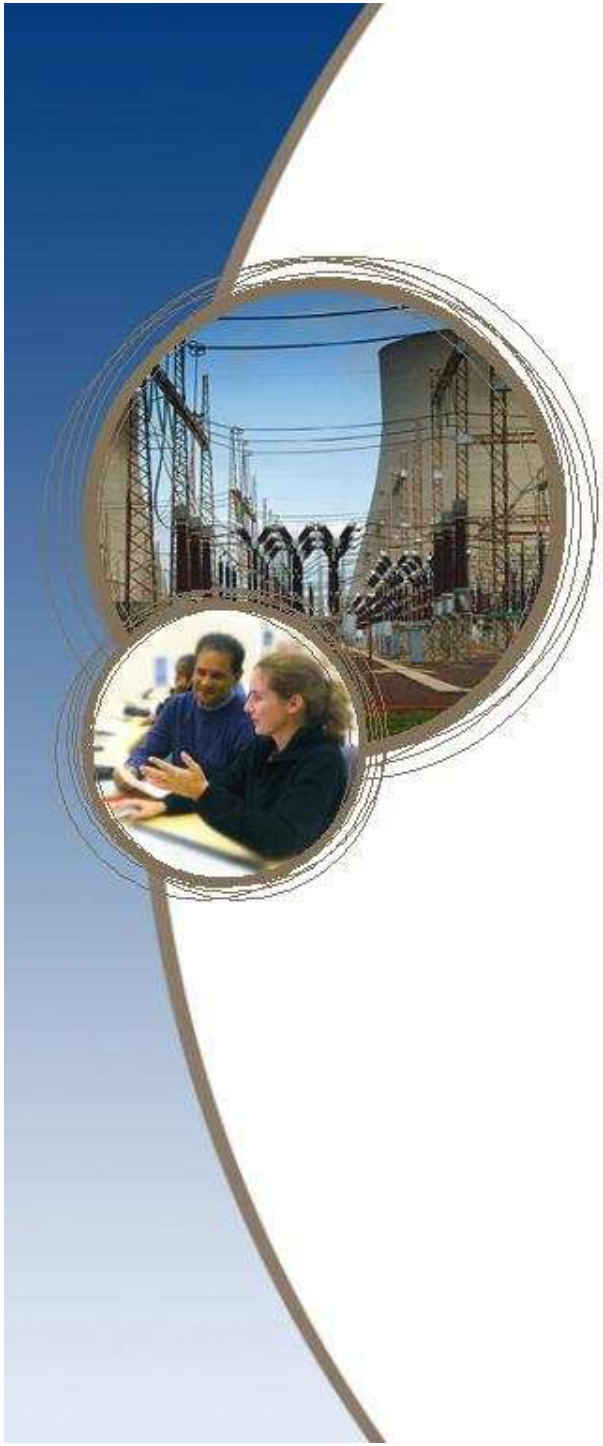
- Eskom has a banking policy in place for MV connected customers and will introduce this for LV large power installations in an interim phase until NERSA policy implementation can be done.
  - Banking would allow customers to offset their energy use by having different consumption and generation patterns.
  - It is done on a revenue calculation and not on a energy offset method
  - The rate is at the Eskom wholesale rate and the generation will always have to be less than the consumed energy for a year.
  - The Eskom billing system capacity to handle this tariff product will be tested from August 2015 onwards.
  - There is no further incentive for the network capacity benefit and the generation capacity created a result of the generation.

Tariffs for SMGs . . . continued

- Eskom has tariff policies for reconciliation and wheeling which are currently available only for large power user (LPU) customers.
  - This applies to customers who have surplus generation which can be used for points of consumption that is either electrically or commercially connected.
  - The rules for how this reconciliation are done are based on the usage by the load i.e. local network account reconciliation, wheeling across networks, provinces and across Municipalities.

Currently relevant factors in the SMG environment

- Further policy support and guidance for the industry to develop.
- Management of an industry that is already implementing solutions.
- Aggregation of SMGs requires a database, and (at least) registration of every installation, also those embedded within municipalities, in order to have a benefit for system operations and balancing.
- Development of training and learning institutions (curriculum and research).
- Development of independent institutions, e.g. quality control.
- The expansion of the role of Industry Associations.



Thank you

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