When do local content requirements make sense?

Lessons from India’s National Solar Mission

Oliver Johnson
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From ‘if’ to ‘when’

• **Political perspective:** inclusion of socioeconomic goals (i.e. jobs) is important to get buy-in to renewable energy strategies

• **Inclusive development perspective:** green growth pathways must generate opportunities for people to move out of poverty

• **Historical perspective:** prior to a global trade regime, many advanced economies built up competitive advantage through protectionist policies

• We need to move from ‘if’ to ‘when’
  
  • Under which conditions are LCRs an effective policy tool for building a competitive local manufacturing industry?
“We will pool our scientific, technical and managerial talents, with sufficient financial resources, to develop solar energy as a source of abundant energy to power our economy and to transform the lives of our people. Our Success in this endeavour will change the face of India. It would also enable India to help change the destinies of people around the world.”

Source: Prime Minister Singh in GoI/MNRE (2010)
Main goals

DEPLOYMENT
climate change, energy security

MANUFACTURING
jobs, economic development, long-term competitiveness

Source: GoI/MNRE(2009)
Goals of the NSM

**DEPLOYMENT**

*climate change, energy security*

- 20GW grid-connected solar energy by 2022
- Grid parity by 2020

**MANUFACTURING**

*jobs, economic development, long-term competitiveness*

- 4-5GW manufacturing capacity by 2020

*Source: GoI/MNRE(2009)*
### Goals of the NSM

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<th>Policy aim</th>
<th>DEPLOYMENT</th>
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<td>Auction-based feed-in tariff to foster deployment of grid-connected solar:</td>
<td>20GW grid-connected solar energy by 2022</td>
<td>4-5GW manufacturing capacity by 2020</td>
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<td>• 1 GW by 2013</td>
<td>Grid parity by 2020</td>
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<td>• 3GW by 2017</td>
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<td>Local content requirements to promote local manufacturing:</td>
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<td>• specific PV components</td>
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<td>• share of CSP project</td>
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*Source: GoI/MNRE(2009)*
Implementation of the NSM

Phase 1: Pilot (2011-2013)
Guiding first 1GW of installations
*PV split into 2 batches*

Directly supporting 3GW and leveraging 6GW between 2014-2017

Phase 3: Scale-up (2017-2022)
Installing further 10GW between 2017-2022

Learning process
Learning process
Local content requirements in Phase 1 of NSM

Solar PV projects

- **Crystalline silicon** technology
  - Batch 1: Modules
  - Batch 2: Cells and modules

- **Thin film** technology exempt

CSP projects

- 30% of local content in all installations
Experience with LCRs in Phase 1 of NSM

LCRs considered to have failed:

For PV, bias towards foreign thin film technology
+ falling export demand

=> 10-15% capacity utilization
   => Companies bankrupt or in debt
   => Many job losses
   => Manufacturers survived by diversifying or soaking up losses

For CSP, plants still delayed
Experience with LCRs in Phase 1 of NSM

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Although, it’s not all bad news:
• PV deployment targets were reached
• Manufacturing capacity has increased
• Political commitment to local manufacturing is clear
What explains the Indian experience with LCRs?

Market size and stability
- Large
- New potential market was large, but competitive
- However, old market shrinking and business models had not changed

Policy design
- Loop-holes
- Thin film exemption made it obvious choice developers seeking lowest cost
- US-EXIM bank finance exacerbated this choice

Cooperation and financial incentives
- Existing
- Government understood problems for manufacturers and developers
- But many conflicting policies regarding promoting of local manufacturing

Innovation potential
- Low
- Innovative potential decreasing as capacity utilization remains low
- In general, manufacturers were geared towards low-cost assembly

(Drawing on Kuntze and Moerenhout 2013)
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Implications for other countries: When do LCRs make sense?

1. When there is **market demand**
   - Implies linking with deployment strategies, such as feed-in tariffs
   - Smaller countries may need regional cooperation to increase demand (utilize regional economic communities?)

2. When they are **limited in duration** and incorporate **planned evaluation phases**
   - Should give local firms a ‘protective space’ to build capabilities, not just give them a free ride.
   - Having scheduled evaluations means that the private sector are aware that changes may occur and plan accordingly
Implications for other countries: When do LCRs make sense?

3. When they are **designed very carefully**
   
   • Focus on technologies and components where there is realistic local potential and where global market entry barriers are manageable
   
   • Set LCR at appropriate level so that it is achievable but also encourages firm development – this requires good dialogue with local and foreign private sector actors

4. When they are implemented in tandem with **additional mechanisms to support long-term development of capabilities**
   
   • Support all stages of the value chain and wider services
   
   • Additional mechanisms, such as training and promotion of business linkages, are necessary to support development of long-term capabilities (c.f. innovation system)
Thank you

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